

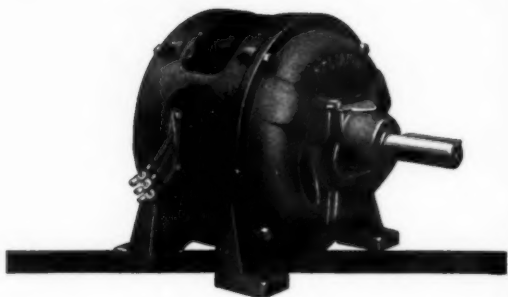
NOVEMBER 1925 - No. 239

Monthly

A Reference

Distributed Free to Machine Tool
Users Everywhere in the United States and to
Dealers in American Machinery Abroad

Published by
A. H. HITCHCOCK
1220-1235 Caxton Building
Chicago



Reliance Induction Motors
are simple, dependable power
units that give you the power
and continuous operation
that mean maximum output
with the minimum of interruptions.

Bulletin 5018 gives detailed evidence

Reliance Electric & Engineering Co.

1050 Ivanhoe Road,

Cleveland, Ohio

Branches:

BOSTON

PHILADELPHIA

CHICAGO

CINCINNATI

NEW YORK

PITTSBURGH

DETROIT

BIRMINGHAM, ALA.

*We specialize in motors, sizes 1/2 to 200 h. p. constant and adjustable speed
D. C.; squirrel cage and slip ring A. C.*

Type A.A. RELIANCE
Induction Motors



You Ought to Have This Booklet!

At the Atlantic City Convention of the American Railway Association, Mechanical Division, June 11-18, 1924, Cle-Forge High Speed Drills established a new world's drilling record — beating their own record set up in 1923.

This booklet gives a complete summary of the Atlantic City tests and is a valuable guide to the shopman interested in finding out just what high speed drills can and will do.

A copy will be sent you—gladly and without charge—for the asking

The **CLEVELAND** TWIST DRILL
COMPANY
CLEVELAND
NEW YORK-CHICAGO-LONDON

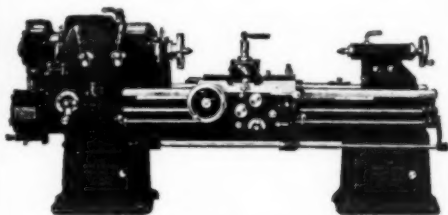
TRADE MARK REG. U. S. PAT. OFF. AND FOREIGN COUNTRIES

Manufacturers, also, of

Carbon and High Speed Drills for every purpose; "Mezzo" Super-Carbon Drills; Hand, Jobbers' and Shell Reamers; "Peerless" High Speed Reamers; "Paradox" Adjustable Reamers; "Quick-Set" Reamers; Chucking Reamers for Turret Lathes; Counterbores; Countersinks; Sockets; End Mills; and the "Ezy-Out" Screw Extractors.

CLE◆FORGE

TRADE MARK REG. U.S. PAT. OFF.



20" Coneless Lathe

Features that cut cost

Twelve Main Spindle Speeds—absolutely selective—with thirteen gears that are always in mesh.

Lathe Spindle Control by means of a lever at the right-hand end of apron—with an auxiliary lever on same controller at end of headstock.

Tailstock of the cutaway type, which permits swivelling of compound rest parallel with the shears.

Double Plate Apron with the mechanism so arranged that longitudinal and cross feeds cannot be engaged when screw-cutting.

Gear Box entirely enclosed, with steel gears throughout.

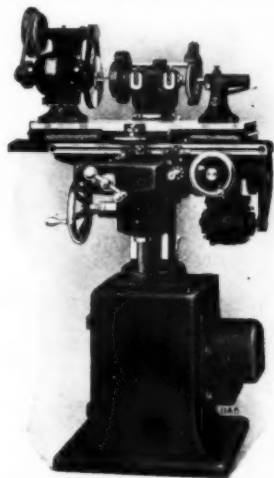
Send for full particulars—sizes 18" to 36"

THE
Boye & Emmes Machine Tool Co.
2245 Spring Grove Ave.
CINCINNATI, OHIO

LeBLOND

UNIVERSAL

Tool Room Grinder



A universal grinding machine adapted to all phases of tool room grinding. For grinding cutters, reamers, taps, hobs, end mills, etc., it is an indispensable tool. Can be furnished as a plain machine or with complete equipment, also motor drive.

Our Catalog will be sent on request

**THE R. K. LeBLOND MACHINE
TOOL COMPANY**

CINCINNATI,

OHIO

Test your Gears



Price

\$375.00

F.O.B. Cleveland

Engineers and Shopmen

will find some very interesting reading in Booklet H41, telling how to take the *guess* and the headaches out of "gear troubles". . . .

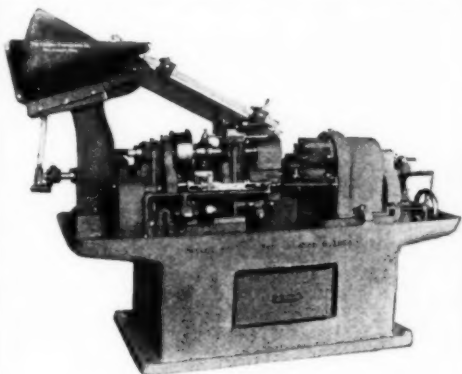
Measure *your* tooth spacing and tooth form within .0001" as it is done in Automotive Plants.

Send for Booklet H41

LEES-BRADNER CO.

CLEVELAND, O.

U. S. A.



**Modern Bolt Manufacturing
Requires**

**ECONOMY AUTOMATIC
COMBINED POINTING
AND
THREADING MACHINES**

Range $\frac{1}{4}$ "x1" to $\frac{3}{4}$ "x5 $\frac{1}{2}$ " bolt and cap screws

**The
Economy Engineering Company
WILLOUGHBY, OHIO**



Motor Driven Machine with Guards in Place

Grand Rapids Universal Cutter and Tool Grinders Embody—

RIGIDITY. This is absolutely necessary where accuracy is essential, and in the case of Grand Rapids Universal Grinders it applies not only to the machine proper but to all attachments. It is exemplified by the knee construction, which carries bearings spaced 13" apart for carrying the saddle.

BULLETIN ON REQUEST

Gallmeyer & Livingston Company

342 Straight Ave., S. W.

GRAND RAPIDS, MICHIGAN, U. S. A.

Cutter and Tool Grinders

For All Classes of Work

No. 12
Cutter and Tool
Grinder



The Nos. 10, 11 and 12 give a range of sizes that will take care of any kind of cutter and tool work as well as light cylindrical grinding.

Let us recommend the proper sizes for your work

LANDIS TOOL COMPANY

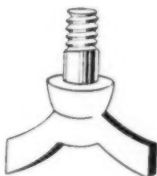
Waynesboro, Pa.

New York Office: 30 Church Street Detroit Office: 5928 Second Blvd.

Chicago Office: 618 W. Washington Blvd.

Threading 1200 pieces per Hour

These brass wing
screws shown are
being threaded on
our



Standard High Speed Tapping Machine

*Let us show you what can
be done on your work*

Leland-Gifford Co.

Worcester, Mass.,

U. S. A.



Branch Offices:

BOSTON
NEW YORK

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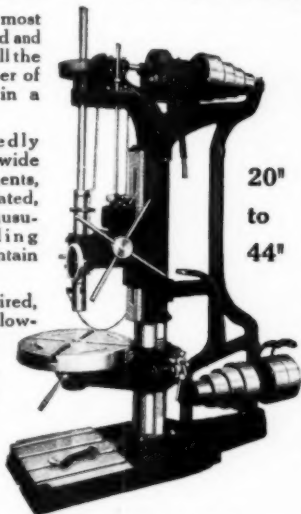
"AURORA"—for Rapid Drilling

Aurora Drills are most carefully designed and constructed to drill the maximum number of accurate holes in a given time.

They are ruggedly built, have a wide range of adjustments, are easily manipulated, are geared for unusually heavy pulling power, and maintain their accuracy.

Furnished, if desired, with any of the following: Patented Tapping Attachment, compound table, and geared motor drive.

Write for complete description and close prices



DRILLING TESTS OF 24" AND 26" AURORA DRILL

Size of Hole	Spindle Speed	Feed per Minute	MATERIAL
1"	360	9½"	Cast Iron
1"	360	6½"	Mild Steel
1¼"	350	6¼"	Mild Steel
1½"	350	9"	Cast Iron
1¾"	225	5½"	Mild Steel
2"	225	6½"	Cast Iron

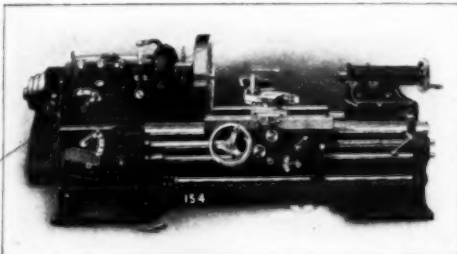
The Aurora Tool Works

DIVISION THE OESTERLEIN MACHINE CO.

3303 Colerain Ave.,

Cincinnati, Ohio

CINCINNATI LATHES



Are furnished with standard or special fixtures to do your jobs most economically. Specialized over twenty years on lathes. Furnished in sizes 16" to 30" inclusive, cone or geared head, belt or motor drive. Get our time estimates on your work.

The Cincinnati Lathe & Tool Co., North St., Cincinnati, O.

No Smoke

No Fumes



Non-Poisonous

Non-Inflammable

Non-Explosive

KASENIT No. 1
For Fine Work and
Very Rapid
Hardening

Sold in $\frac{1}{2}$ lb., 1 lb.,
3 lb., 5 lb. and
10 lb. tins

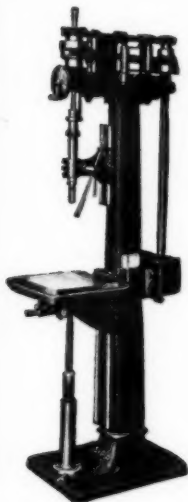
KASENIT No. 2
For General
Hardening

Sold in 25 lb. and
50 lb. kegs

ASK YOUR DEALER

**KASENIT COMPANY, 2 & 4 Stone Street
NEW YORK, N. Y.**

FOOTBURT



A Single Spindle Footburt Sipp Sensitive Drill

**Made in three
sizes of single
and multiple
spindle models**

More holes with this machine

Why? Because you can change speeds in two seconds or belts in ten seconds—because the automatic idlers keep the belt pulling to capacity at all times—because the full ball bearing equipment and accurate machining gives a smooth, fast cut.

Write for No. 650 Folders

The Foote-Burt Company, Cleveland, O.

FOOTBURT

*The name—***STEPTOE**

stands for high grade workmanship. It is backed by a firm that has had more than 80 years of experience in the manufacture of Machine Tools.



14"x6'—\$450.00

16"x6'—\$500.00

Gear Box
\$85.00 extra

Our line comprises

Shapers

Lathes

Milling Machines

Die Slotters

and

Portable Electric

Screw Driver

Catalog sent upon request

THE JOHN STEPTOE COMPANY
CINCINNATI, OHIO

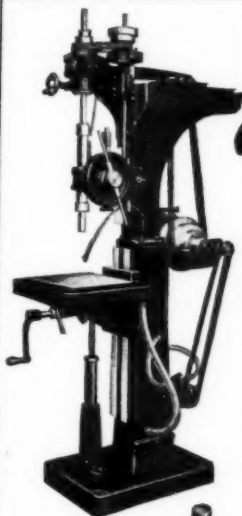
Gear Cutting
Special Machinery
Machine Work of All Kinds

Let Us Figure With You

The John Steptoe Company

2961 Colerain Avenue

CINCINNATI, OHIO



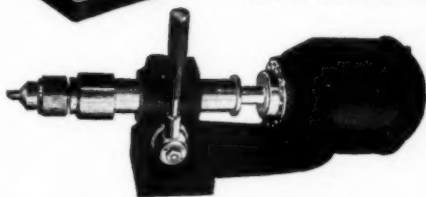
DO YOU KNOW THE *Avey-matic*

can be operated
FULL AUTOMATIC
SEMI AUTOMATIC
or **HAND FEED ?**

In the full automatic all movements of the spindle are continuous, operator only changing the work.

In the semi-automatic, the feed trips, returns the spindle but the feed is re-engaged by hand.

The feed can always be disengaged at any point of the stroke or advanced ahead of the feed by means of the hand lever.



Three Sizes of Motor Drilling Units

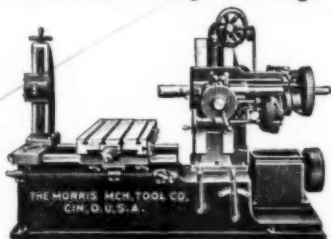
CAPACITIES $\frac{3}{8}$ " $\frac{5}{8}$ " $\frac{7}{8}$ " in C. I.

Can be attached to tables of regular AVEY machines for side hole drilling while regular operation is being performed. - - - Can be mounted in any position.

GET OUR CATALOG OF LATEST DRILLING PRACTICE

THE AVEY DRILLING MACHINE CO., - CINCINNATI

**You will find plenty of use for a
Morris Horizontal Drilling and Boring Machine**



It will make money for you on jobbing work, in the tool room or on production work. Micrometer adjustments on the head, table and bar support, and it is built to hold its accuracy.

Our circular will tell you more about it, and the price is right

The Morris Machine Tool Co., Cincinnati, Ohio

**The BURKE
No. 3 Miller**

Bench Type.....\$155.

Column Type .. \$171.

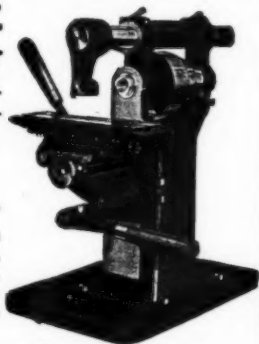
Longitudinal feed, 8 in.

Traverse feed, $3\frac{3}{4}$ in.

Vertical feed, $7\frac{1}{2}$ in.

Table surface, $3\frac{1}{2} \times 12$ in.

BURKE Bench Millers are built in various sizes, both power and hand feed, priced from \$100 to \$220. They are unexcelled on small milling operations.

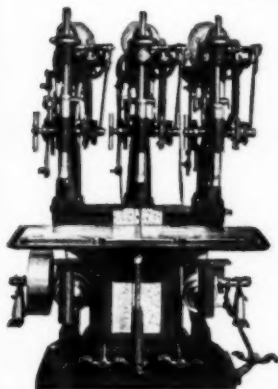


You'll like Burke Millers; we'll appreciate your inquiry

The Burke Machine Tool Co.
297 East 16th St., Conneaut, Ohio

ROCKFORD Drilling Equipment

Insures Rock-Bottom Shop Costs



The Rockford Automatic Gang Drilling Machine

"—superior in convenience, capacity and workmanship, a top-notch"

The Rockford Appeals to Superintendents—to all practical men who are responsible for results. As a producer it is second to none; as a high-class, dependable machine it gives satisfaction (and profits) way above the average.

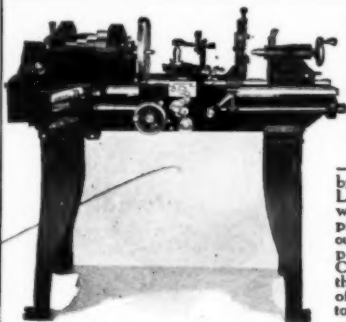
Automatic Return—When each spindle has completed its operation it automatically returns to its highest position, where it remains until the starting lever is tripped, when it immediately drops to position above the work.

By Removal of the stop pin in the cam, the spindle will immediately return to lowest position above work, and when tripped by automatic stop, will return to highest position and immediately drop again to work, repeating the movement automatically until the power is shut off. The spindle can be pulled ahead of the feed while in operation, a great advantage in drilling through a cored piece, piping or similar work.

Built with 2, 3, 4 and 6 Spindles—Box Column Type

Write us for Folder. Glad to answer your questions

Rockford Drilling Machine Co.
Rockford, Illinois



Get Your Money's Worth

—"and then some,"
by letting Sidney
Lathes do your
work. The one
pictured here is
our 11'x4' medium
pattern, Quick
Change Gear type,
the heaviest lathe
of this swing built
today.



Send for catalog fully describing this lathe and
others. Tell us your wants. Address Dept. 1811

The Sidney Machine Tool Co.
Sidney, Ohio

*Are you having trouble with your
screw machine production?*

Perhaps your collets are not right.

Try—

HARDINGE BROTHERS, Inc.,

who have been curing ills of this
kind for over thirty years. A post
card will bring you our catalogue.

Hardinge Brothers, Inc.

4149 E. Ravenswood Ave., Chicago, Ill.

Here It Is, Boys, A Complete Production Unit!

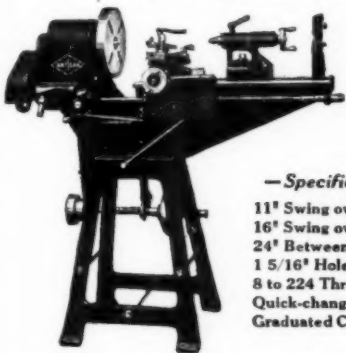
No extras to buy — No countershaft to put up.
Ready for work as soon as the crate is removed.

- 1—"ARTISAN" 11" Lathe, as illustrated below.
- 1—Chuck (suitable type) fitted to Spindle.
- 1—Jacobs $\frac{3}{8}$ " Chuck fitted to Tailstock.
- 3—"Armstrong" Tools—Turning, Boring, Threading.
- 4—"Armstrong" Dogs— $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1" and $1\frac{1}{4}$ " cap.

\$237.00 complete, f. o. b. cars, Cincinnati

\$287.00 with $\frac{1}{2}$ H. P. Motor mounted, ready
to connect to the nearest light-socket.

Why Pay More?



— Specifications —

- 11" Swing over Bed
- 16" Swing over Gap
- 24" Between Centers
- $1\frac{5}{16}$ " Hole thru Spindle
- 8 to 224 Thread Range
- Quick-change Gears
- Graduated Compound

*This Outfit will soon pay for itself in any Shop!
Easy payments if desired.*

Artisan Mfg. Co. Station "N"
Cincinnati, Ohio



\$765

**15"x6'
Geared
Head
Lathe,
Single
Friction
Pulley
Drive,
without
Motor.**

*Write for details
on our new*

Gold Seal Lathes

The Sebastian Lathe Company
1000 Culvert St., Cincinnati, O., U. S. A.

Profits

come from the *output* of your equipment,
not from its first cost



NEW C. & J. LATHES
15" and 16"
Geared or Cone Head

The Carroll & Jamieson Machine Tool Co.
Davis Road, Batavia, Ohio



The Lowest-Cost Shaping

—that is possible on any machine, in any shop, can be done on the shaper shown below, providing only that the work comes within its capacity.



The Rhodes Shaper and Slotter

—is made small so it can be sold for a lot less money to those who want accurate and economical shaping and slotting on tool and die work and other small pieces, and so it will handle all work within its capacity with greater facility than is possible on larger, more cumbersome machines.

*Ask your dealer or write for
CATALOG H22*

The Rhodes Mfg. Company
984 Park Road, Hartford, Conn.

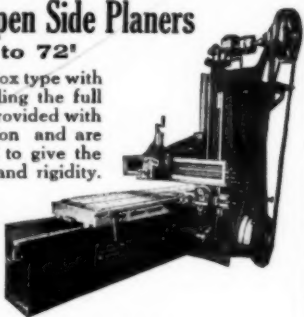
SHAPERS—RHODES—SLOTTERS

Cleveland Open Side Planers

26' to 72'

The Tables are Box type with cross ribs extending the full width. V's are provided with ample lubrication and are broad and spaced to give the greatest firmness and rigidity.

Self Oiling Bushings throughout Drive; Box Tables; Aluminum Drive Pulleys; Counterbalanced Side Heads; Ball Bearing Countershafts.



Over 1060 installations. Send for descriptive circular.

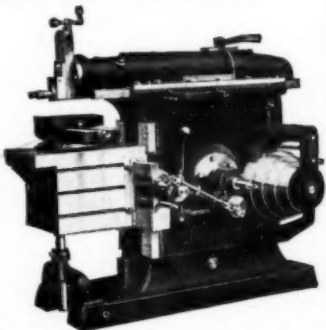
The Cleveland Planer Co., 3148 Superior Avenue,
CLEVELAND, OHIO
Established in 1900

SHAPERS

12", 14", 16"
Plain Crank,
16", 20", 25"
B. G. Crank,
either Cone
Driven or
through Speed
Box.

Belt Shifter
Regular Equip-
ment All Cone
Driven Shapers.

32" Back Gear-
ed Crank, Sin-
gle Pulley
Drive.



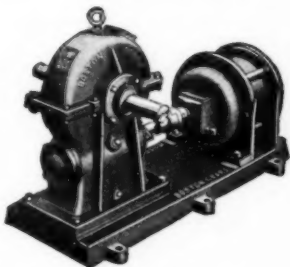
The Smith & Mills Co., Cincinnati, O., U.S.A.



STANDARDIZED

Speed Reduction Units!

**For IMMEDIATE Delivery
In $\frac{1}{4}$ to 12 Horse Power.
Helical and worm gear types.**



*Send for new booklet—
“Speed and Power”
it's free.*

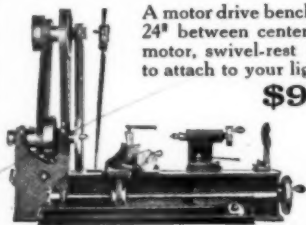
BOSTON GEAR WORKS SALES CO.

**MAIN OFFICE AND FACTORIES
Norfolk Downs, Mass.**

BOSTON NEW YORK PHILADELPHIA CLEVELAND CHICAGO
Service Stations in Principal Cities

Just-Rite Lathes

Made in Sizes from 10-in. to 20-in.



A motor drive bench lathe, 10" swing, 24" between centers, complete with motor, swivel-rest and pan, ready to attach to your light socket.

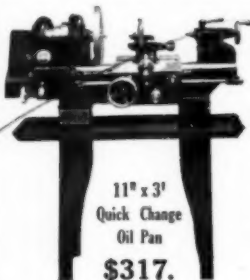
\$98

JUST-RITE
for turning,
boring, mill-
ing and drill-
ing (not screw
cutting).

Order one by express. Weight, 230 lbs.

A. V. Carroll Machine Tool Co., Norwood,
Cincinnati, O.

Monarch Jr. Lathes



11" x 3'
Quick Change
Oil Pan

\$317.

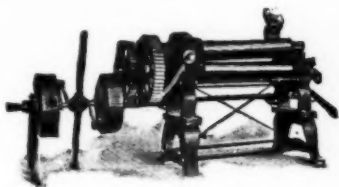
are the smallest members
of the Monarch lathe
family. Yet they are the
"biggest little lathes" built.

The Monarch line of
lathes includes all sizes
and types from the little
9-inch Junior lathe to the
big, massive 30-in. lathe.
In this line there is a lathe
to fill your requirements at
the price you want to pay.

Send for Catalog

The Monarch Machine Tool Co.

206 Oak Street, Sidney, Ohio



BELOIT

INITIAL TYPE

Sheet & Plate Bending Rolls

The Beloit Initial Type Rolls are built in a large number of sizes and capacities, and for a great variety of work.

The modern design of the Beloit Rolls of this type makes it possible for the operator to curve plates completely to the edge, thus getting away from the undesirable flat near the edge of the sheet.

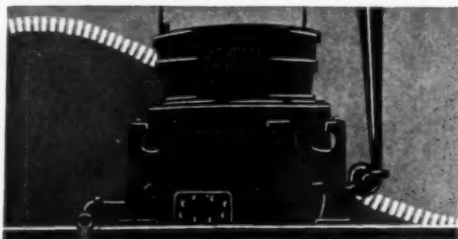
The quick-acting cam lever device raises the top roll for the removal of completed cylinders.

Individual and simultaneous adjustment of both ends of the forming roll can be furnished, and the machine can be arranged for third roll drive, when necessary.

Those in the market for Bending Rolls cannot afford to fail to give us their specifications, and to get our quotations.

We solicit your inquiries for Bending Rolls, either Initial Type as shown above, or the Pyramid Type machine, as well as for Punching and Shearing Machinery, both hand and power.

Hendley & Whittemore Co.
100 S. State St., **BELOIT, WIS.**



**Save
Cutting
Oil!**

6 to 15 gallons per load—
three or four loads per
hour. *Write for catalog.*

Tolhurst Machine Works
Troy, N. Y.

Amazing Returns by reclaiming the oil from chips

Yes, the returns on the investment are amazing. The Curtis

Centrifugal Oil Extractor

reclaims *about 80%* of the oil that is usually carried away on chips.

Two sizes, belt or motor driven. The illustration shows our smaller size, with G. E. special motor on spindle, and with hoist. It holds about 100 lbs. of chips, from which the average saving from 20 installations was 2.17 gallons of oil per load.



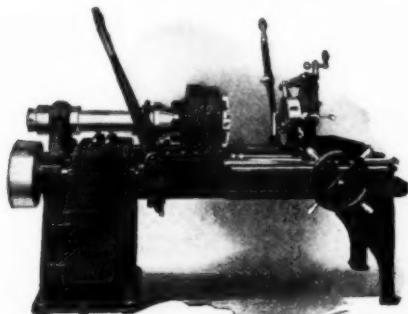
Write for Catalog and prices
Don't miss this investment

No. 250—Cap. $\frac{3}{4}$ Bushel

The Leon J. Barrett Co., Worcester,
Massachusetts
Successors to Curtis Machine Co.

Money Can't Buy—

Better Pipe Threaders than B & Ks



No. 2 PDQC—Threading and Cutting Off—Cap. $\frac{1}{4}$ " to 2"—Belt Drive

SO WHY NOT GET the best while you are at it? Each and every part of every B & K—from the smallest to the largest size—is given the most careful attention, consequently every machine is built right, from the ground up. And the steadily increasing demand for B & Ks shows that their excellence is appreciated.

Besides that—and it is fundamental—B & Ks are designed right, embodying such improvements as make it easy for the average operator to turn out a maximum quantity of accurate work daily.

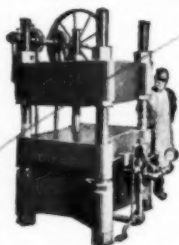
A gear box drive assures you of the correct threading speed at all times, and instant adjustment can be made to the 1000th of an inch, etc. The 17 styles and sizes afford you a wide choice for your exact needs—a machine that will do your work most economically.

Let us mail the Catalog. Write us your needs.

Bignall & Keeler Machine Works
Edwardsville, Illinois

Do You Know

That Hydraulic Presses Can Be Made To
Operate As Fast As Geared Presses ?



WE SPECIALIZE—

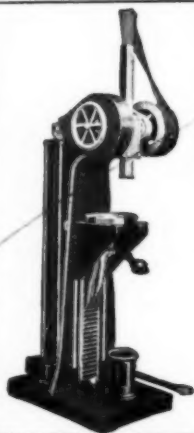
on Quick-Acting Presses
with Automatic Control.

WE BUILD—

Presses in Any Size and
for Any Purpose Requir-
ing Pressure.

Write For Catalog

LOURIE MFG. CO., Springfield, Ill.



Atlas Arbor Presses

For All Forcing Operations

Illustration shows our
No. 55 Power Drive
Press, which is adapta-
ble for fast production
work and capable of
supplying ten tons pres-
sure.

*Write for our Bulletin—
showing 30 different sizes*

Atlas Press Co.

*Department B,
Kalamazoo, Michigan*

Two Good Hack Saws for General Work—at a Low Price



Marvel No. 1 Hack Saw

Capacity 4"x4"

A splendid, efficient saw for use where large capacity is not essential.

ORDER NOW



MARVEL No. 2 Hack Saw with swivel vise that swivels both ways, right or left, and has adjustable stroke.

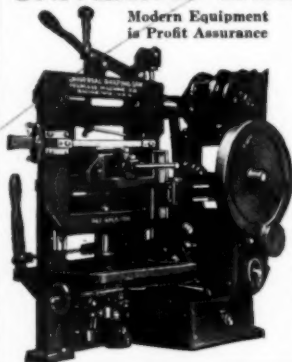
CAPACITY: { 6"x6" on long stroke.
8"x8" on short stroke.

The ideal saw for all around general work. Place your order with us today.

Both these saws can also be furnished motor driven

Armstrong-Blum Mfg. Co.
341 N. Francisco Ave., CHICAGO, ILL.

—PEERLESS— UNIVERSAL SHAPING SAW



Modern Equipment
is Profit Assurance

Different Principles
Greater Efficiency
Give The Most Of—

Speed
Accuracy
Blade Economy

SIZES:

6"x6"--9"x9"--13"x13"

PEERLESS

HIGH SPEED HACK-SAWS

6"x6" 9"x9" 13"x16"

Sturdy--Efficient--Reliable

Peerless Machine Co.

1609 Racine St.

Racine, Wisconsin

Write for Details

T.H.L. Front Lever Bench Punch

Malleable iron body; working parts hardened. Steel shaft and plunger. Die cannot lose alignment with punch. All parts interchangeable. Built for hardest, toughest work.

PRICE \$45

Extra Punches, 20 cents each;
extra dies, 30 cents.

Capacity 13/32" thru 1/4" steel,
1 1/32" thru 5 16". Punches up
to 1 2". Weight, 70 lbs.

A good buy; can ship promptly

**T. H. LEWTHWAITE
MACHINE CO.**

(Est. 1890)

417 E. 31st St., NEW YORK



Spring Press

(UNIFORM BLOW)

Foot or Power

Single and Double Action

These Presses are used in large numbers by manufacturers of electrical devices, jewelry, cutlery, hardware, clocks, radio sets, toys, instruments, etc.

The Uniform Blow a special feature — increases production and eliminates costly inspection.

The Taylor & Fenn Co.

Hartford, Connecticut, U. S. A.

No Nicking, Breaking or Grinding

With Peter Bros. Abrasive Metal Cutter

Makes a quick, clean, smooth cut thru hardened steel, brass, copper, aluminum, or any other tough metal. Does not nick or waste any material, nor spoil the temper.

Will save five hours a day when it is used continuously, and soon earn its cost.

8" Size \$22.50, with C. S.
Splendid for tool room. Cuts all high-speed steel up to $\frac{3}{8}$ " square.

12" Size \$60, with C. S.
Cuts up to $2\frac{1}{4}$ " diameter, round or square, at any angle up to 45 degrees. Ball bearing.

15 Days' Free Trial

Write us or ask your dealer

PETER BROTHERS MFG. CO.
115 Railroad St., Algonquin, Ill.



This Free Chart

The Correct Guide in Cutting

Your request on your letterhead will bring this authoritative chart.

RACINE "JUNIOR"

Portable High Speed Metal Cutting Machine, easily moved to any location near electric light socket. Smooth, vibrationless, need not be bolted to floor. Normal capacity 0 to 4".

Use "Racine" H. S. Wood and Metal Band Saw Blades & "Racine" H. S. Tungsten Power and Hand Hack Saw Blades. **Catalog H.**

Racine Tool & Machine Co.

1429 Junction Av., Racine, Wis.
"STANDARD THE WORLD OVER"





The Old Way

Results in damaged shafts, bushings, pins and other parts, as well as accidents to the workmen.

With Nicholson Arbor Presses

all of these losses and accidents are eliminated, and considerable money is saved. Made in five sizes that take work up to 20" in diameter and 31" high and exerting pressures up to 9,000 lbs. Can make immediate delivery on all sizes and will be glad to send any size on trial.

Nicholson Expanding Mandrels

Save space—A set of nine does the work of several hundred solid mandrels.

Save time—Instantly fit any hole, round or square, from $\frac{1}{2}$ " to 7".

Save labor—No need to caliper a dozen or so solid mandrels, or turn one down to fit certain job.

Write for literature and 30-day trial plan

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117 Oregon St., Wilkes-Barre, Pa.



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ANGLE IRON SHEAR No. 4

Capacity 2"x2"x¼ Angle Iron
Weight, 41 Lbs.

Inserted Tool Steel Blades.

It is so designed that it will shear without any clamping and does nice square work.

Leverage over entire surface of Shearing.

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Metal Tool Co.
95 Forbes St.,
Rockford, Ill.

"Bridgebilt" Factory Seating and Tool Racks

A diversified line to meet requirements of every branch of industry.

The Bridgebilt line
will give long and
satisfactory service

For illustrated price list
and discounts write—

**The Chicago Wire
Chair Co.**

619 No. LaSalle St., Chicago, Ill.

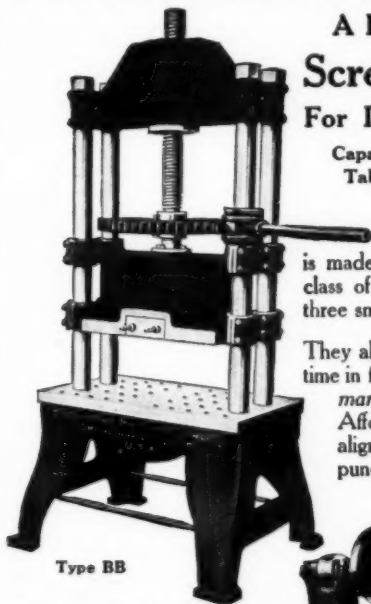
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Two Real Cost Reducers—

A Four-Post Screw Press For Die Makers

Capacity, 80 tons
Table, 20"x36"



Type BB

This extremely rigid press is made for a heavier class of work than our three smaller sizes.

They all save hours of time in fitting dies. *One man does the work.* Affords perfect alignment between punch and die.

And the other—a Surface Grinder

Powerful—rigid—accurate—no vibration—no noise—a revelation in quiet efficiency. Graduated feeds.

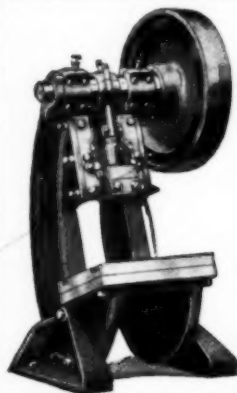
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**JARECKI MACHINE
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Successor to Manhattan Machine & Tool Works

Dept. A. GRAND RAPIDS, MICH.





Trade **Verson** Mark

Punch Presses

For Accurate Work

Ask your dealer
to show you the
"Verson" Line of
Power Presses,
or write direct for
circulars.

**La Salle
Machine Works**

3013 S. La Salle St., Chicago, Ill.

Manufacturers of Power Presses, Angle Shears and Dies

There with the Punch

Great Power backed by
heavy rugged design enable

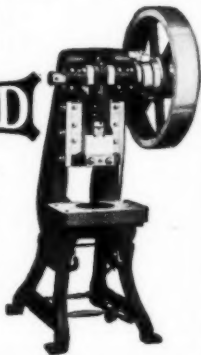
HIGH DUTY
ROCKFORD
PUNCH PRESSES

to out-punch and out-work
any press of their capacity.

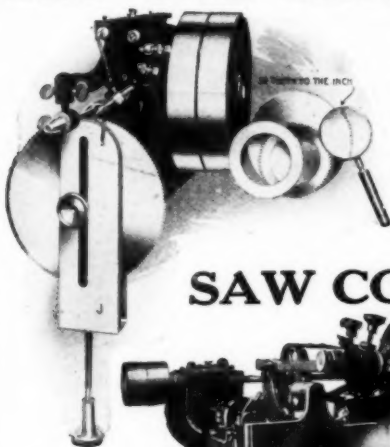
Their punch-ability and
accuracy will surprise you.

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Rockford Iron Works
ROCKFORD, ILL.



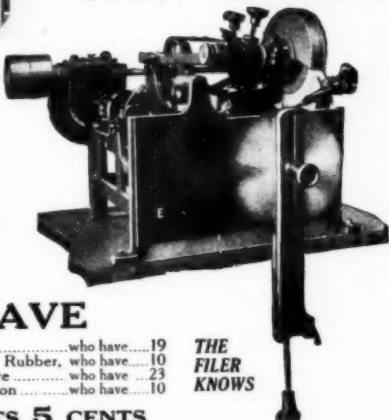
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Model J
Resharpens all
soft or medium
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Circular Saws
used for cutting
Brass, Bronze,
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Etc.

SAW COSTS

Model E
Salvages all
Cold, Milling,
Slitting and
Screw Slotting
Saws



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KNOWS**

IT COSTS 5 CENTS

To Sharpen a Saw on one of these Machines

Write for our **FREE** booklet on saw maintenance

THE WARDWELL MFG. CO.

Specialty Manufacturers of the largest line of Saw Filers made in the U. S.
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The "GUSHER"

The Last Word in Machine Tool Coolant Pumps

Of highest efficiency, requires the least power, and stands the wear and tear of time.

"GUSHERS" are ball bearing, have no gears, no foot or relief valves, no packing nuts, need no priming, and are not injured by grit or small chips.

Capacities, 3 to 30 gallons per minute. Furnished with individual motors for any current, also for belt drive.

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FEDERAL DIAL COMPARATOR

- CAPACITY 6" -



With Indicator
Graduated .001"

\$33.50

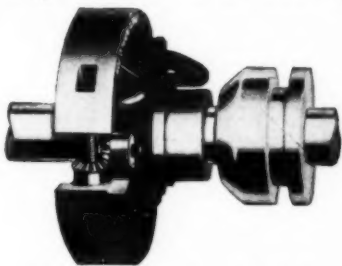
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Why the Conway?



Unit Expansion Clutch

BECAUSE it combines in a compact assembly of a few strong and simple parts every requirement of a satisfactory clutch; one that under the hardest conditions will deliver all the power the chain or belt will bring it—the prime essential of an efficient clutch.

BECAUSE it engages easily, releases quickly, idles without drag, and does its appointed task without squeak or groan.

BECAUSE it has exceptional strength and reliability, adds to your machine no complications or disfigurements, takes up little room, is neat and workmanlike in appearance.

BECAUSE it is available in all practicable machine sizes, in both expansion and compression types, is reasonable in cost, and satisfies both the machine maker and his customer.

May we tell you more?

The Conway Clutch Co.

1951 Riverside, Cincinnati, Ohio



Style "WC"



Style "O"



The Hinge



Style "G"



Style "A"

Gits Gravity and Wire Wick Feed Oilers

Gravity Feed—flushes the bearing.

Wire Wick Feed—gives desired prolonged feed.

Wire Wick—replaces waste or felt.

Made in Standard sizes.



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Write for Catalog No. 20

Showing 255 full size illustrations with detail dimensions.



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GITS OIL CUPS

Oil cups for every lubricating need. State style and size in which you are interested, and we will send free samples and catalog.



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GITS BROS. MFG. CO
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Empress Oil Cups and Grease Cups

The Empress line of grease and oil cups is complete; it consists of over fifty different types in several sizes. Write for Booklet No. R-103, it gives full data.

A cup for every purpose.

Bowen Products Corporation
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NO. 249



NO. 209



NO. 218



NO. 213

Barker Wrenchless Chuck

Developed and Manufactured by Thomas Elevator Co.

A complete Chucking Unit in itself. The Barker Wrenchless Chuck requires No Accessory Installations.



Made in two- and three-jaw styles, for every kind of turret lathe, automatic, and semi-automatic machine work.

Thomas Elevator Co.

Chuck Division

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Adjustable Threading Dies FOR BOLTS AND RODS

Requiring no reversing to remove them.
Also adjustable centering jaws in the new pattern



"DUPLEX" Die Stock Set

Each cutting edge on separate flat piece makes sharpening easy. Wide adjustment.

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A Profit of 500% a Year

*Built since 1887
Better now than ever*



TOWSLEY TRUCKS

Are made in many styles for every need.

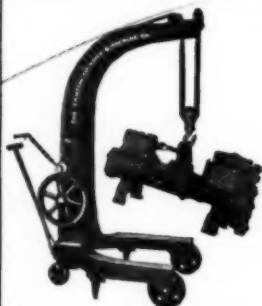
Repay their cost every two to three months.

Glad to tell you how.

May we submit the facts and figures ?

John T. Towsley Mfg. Co., Cincinnati, Ohio

CanTons CAN and Do Tote TONS



Having made good in shops of all sizes, they are now admiringly referred to everywhere as

"The Handiest Tool In the Shop" —

Used as a crane, hoist, and truck, with a one-man crew, they save much time and labor. Your choice of several sizes.

Write for Booklet E-8

CANTON FOUNDRY & MACHINE CO., Canton, Ohio

New York Office: 203 East 15th Street, Second Floor

TRIBLOC CHAIN HOIST

**Their use speeds
human effort**



Easy running Tribloc Chain Hoists remove much of the drudgery from lifting operations—their use speeds human effort and minimizes the cost of placing heavy work in the machines.

Sturdy—positive—easily controlled—Ford Tribloc Chain Hoists are an asset. Workmen appreciate them—management profits from their use.

Let us tell you how you can use them in your shop.

Constructional details in Catalog 7-B.

A copy will be sent on request.

Ford Chain Block Company

Second and Diamond Streets
PHILADELPHIA, PA.

Ford Chain Hoists are made in many sizes and types. The $\frac{1}{4}$ ton to 2 ton type is shown above. The Screw type is a light weight, powerful hoist preferred for portable use. The Differential type is recommended for use where light loads are handled occasionally.

2298-D

Dependable Service on Hollow Bored Forgings and Steel Shafts



If you make machines on which you use *Lathe Spindles, Piston Rods, Rams, Clutch Shafts*, or similar parts, let us quote on your requirements. Our products are right, our prices are right, and our service is dependable.

Send along your blueprints; we'll both be pleased with a trial order

American Hollow Boring Co.
Erie, Penna.

Vanderbeek Universal Joints



—represent the practical refinements of 25 years experience in manufacturing Universal Joints. All parts are generous sized, fully protected against dirt, and are practically self-oiling. Exceptionally strong, they transmit full power up to 70°.

Vanderbeek Joints are in daily use on thousands of machines.

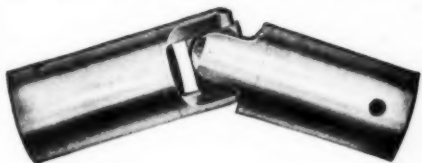
*Write today for our
Descriptive Catalog.*

American Tool Works, Inc.
Hartford, Conn., U. S. A.



NATCo

Universal Joints



Of Proven Service

Made from Alloy Steel.

All working surfaces hardened and ground to insure maximum life.

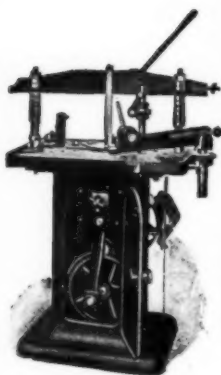
Interchangeable manufacture permits repair parts replacement to overcome natural wear. Complete replacement is seldom necessary.

Manufactured in the following sizes—

$\frac{5}{8}$ " , $\frac{3}{4}$ " , 1" , $1\frac{1}{4}$ " , $1\frac{1}{2}$ " , 2" , $2\frac{1}{2}$ " , 3" .

*Descriptive Bulletin will be
sent on request.*

The National Automatic Tool Co.
Richmond, Indiana



Rapid Keyseating On the "Davis"

Equally profitable for the manufacturing plant and jobbing shop. It has the speed for economical quantity production, and is quickly set up for each item of a run of mixed work.

PLEASE READ THE TABLE BELOW

Sample of Cutting Time on Gears

Size of Blank	Kind of Stock	Size of Keyway	No. at 1 Chucking	Cutting Time
$3\frac{1}{4}'' \times 3\frac{3}{4}''$	Steel	$3/16'' \times 3/32''$	3	1 min. 30 sec.
$6\frac{3}{4}'' \times 1\frac{1}{8}''$	C. Iron	$\frac{1}{4}'' \times \frac{1}{8}''$	1	20 sec.
$2\ 5/16'' \times 9/16''$	Steel	$\frac{1}{4}'' \times \frac{1}{8}''$	4	40 sec.
$3'' \times 4\frac{3}{4}''$	Steel	$5/16'' \times 5/32''$	1	1 min. 40 sec.
$3'' \times 7/16''$	C. Iron	$\frac{1}{8}'' \times 1/16''$	4	30 sec.
Oil Groove	C. Iron	$\frac{1}{8}'' \times 2\frac{7}{8}''$	1	30 sec.

THE "DAVIS" is made in two sizes to cut 1-16th to 1-inch keyways in pulleys, gear blanks, bell cranks, crank handles, etc., etc., and for slotting, oil grooving and work of a similar nature. It is simply designed, ruggedly built, and a big producer on all classes of keyseating. Can equip for motor drive.

Let us mail you the Folder, which contains a lot of interesting, practical information

Davis Keyseater Company

255½ Mill St.,

Rochester, N. Y., U. S. A.



All Types Keys

CRANKSHAFTS

Forged or Finished

CONNECTING RODS

Forged or Finished

MACHINE KEYS

Quick delivery—ready to drive

WOODRUFF KEYS

Ship from Stock

TAPER PINS

Ship from Stock

Send us your inquiries

Wm. Leard Co.

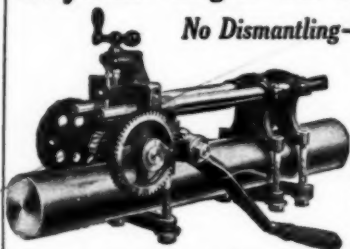
6th Ave.

New Brighton, Pa.



Keyseats Right On the Spot

No Dismantling—No Fuss



**The BURR
Portable
Keyseater**

Cuts keyways
up to 12" long,
in shafts up to 5"
diam., anywhere,
in any position.

Have one on
hand for your
next emergency—the cost is often saved on a single job. The
seven sizes are quick and accurate. Hand or power driven.
Over 9,000 in use. *Order yours today!*

JOHN T. BURR & SON

422 Kent Ave., Brooklyn, N. Y.

One Better

There Is

No clamping or chucking of
the work when using this
keyseating miller. The job is
simply held by hand.

Delighted to send you
CATALOG O

National Machine Tool Co.

2268 Spring Grove Ave.,

Cincinnati, O.

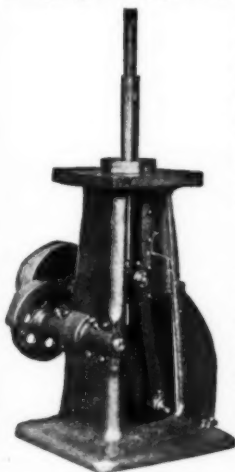


Simplicity—

Keynote of the Catlin Keyseater

With less than half the number of parts of other keyseaters, Catlins are proportionately simpler machines to operate. Any average mechanic can produce top-notch results with a Catlin.

They have been found thoroly successful in automobile plants, government shops, navy yards and many big factories, both at home and abroad.



The machine shown here takes care of the needs of most machine shops. The stroke is adjustable up to 13", and it cuts keyseats from 1/16" to 1 1/2". Our other sizes will do all the keyseating that may come up in any shop or ship yard.

Economy

On some classes of work it is possible to keyseat piece after piece without clamping down the work, or stopping the machine.

Catlins are making new records right along—why not have them save time and money in your shop?

Let us mail you the interesting folder, describing the various sizes, including their capacities

Chattanooga Machinery Company

2401 Bennett Ave., Chattanooga, Tenn.

Over 100 Shapes and Sizes of Armstrong Tool Holders

SAVE h. s. Steel, 90%; Grinding, 70%; Forging, 100%



We also make—all of Armstrong quality—

Ratchet Drills
Drilling Posts
Drill Drifts
Drill Vises

Lathe Dogs
Clamps
Wrenches
Planer Jacks

Bolt Drivers
Tool Posts
Drill Sleeves
and Sockets

Glad to mail you the Catalogs; write for them

Armstrong Bros. Tool Co.

"THE TOOL HOLDER PEOPLE"

308 N. Francisco Ave., Chicago



Strand Rotary Files

Used with Strand
Flexible Shaft
Machines. Are
giving excellent
service.

Write for Catalog

N. A. Strand & Co.
5001 No. Lincoln St.
CHICAGO

HIGH SPEED HAND CUT ROTARY FILES





DUST—

from

- Sand Blasts
- Emery Wheels
- Tumbling Mills
- Polishing Wheels

etc., etc., etc.,

—and including all kinds of heavy, flinty, gritty, grinding and cutting dust, is

Removed Most Efficiently

and economically with the old reliable "Rarefied" Dust Collector. Operated on the "rarefied" or partial vacuum principle, the air is drawn thru the Collector, and the dust is removed before the air reaches the fan.

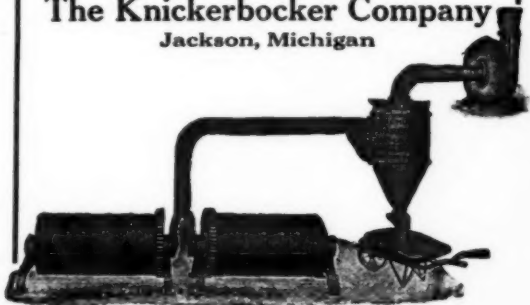
The "Knickerbocker Way"

not only collects practically all of the dust, but it often uses 40% less power, and keeps repairs down to next to nothing. How's that for economy?

Let us send you a copy right now of our explanatory booklet, and a partial list of prominent, satisfied users.

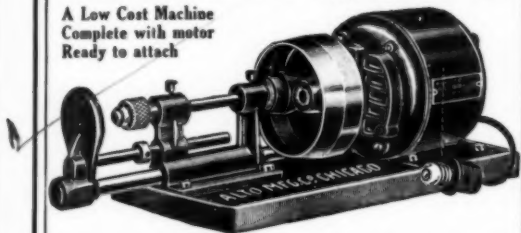
The Knickerbocker Company

Jackson, Michigan



No. 1 ALTO Motor Driven High Speed Tapping Machine

A Low Cost Machine
Complete with motor
Ready to attach



A self-contained, high-speed, motor-driven tapping machine, complete and ready to attach to light socket, so simple in design that it sells at a low price. And it works beautifully—just what you want. Capacity, $3/16$ " in brass, $1/8$ " in steel. Write for description and price.

The Alto Mfg. Co., 1647-51 Wolfram St.
Chicago, Ill.



Hand-operated
Self-tightening

Etco

Keyless—Ball Bearing Drill Chuck

A keyless, ball bearing drill chuck with a continuous grip.

As the load increases the Etco grips harder. It releases by hand—always. It saves time, drills—and chuck repairs are practically eliminated.

Send for details of special exchange offer
Use ETTCOS on your electric drills

Etco chuck sizes:

No. 1—0 to $17/64$ " No. 3—0 to $17/32$ "
No. 2—0 to $25/64$ " No. $3\frac{1}{2}$ — $1/8$ to $5/8$ "

Eastern Tube & Tool Company, Inc., 600 Johnson Ave.,
BROOKLYN, N.Y.

**TRY us
on your**

Difficult Riveting Job



We have solved the riveting problem for many manufacturers, who thought hand riveting was their only way out, until they investigated the "GRANT," which does their work better and at much less cost.

"GRANT" Noiseless Rivet Spinning Machines and Rotary Vibrating Riveters cover all classes of work, including awkward pieces and riveting in out-of-the-way places.

*Tell us what your work is
or send samples for riveting*

The Grant Mfg. & Machine Co.
C. E. Station, Bridgeport, Conn.



When Taps Break Use a Walton!

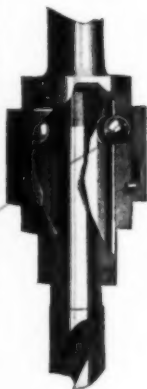
This handy little device saves time and labor out of all proportion to its small cost. The Walton Tap Extractor soon earns its cost several times over.

You insert the "fingers" into the work, give a few twists, and the tap backs out easily and safely. Sizes No. 8 to 1¼".

Shipped on 60 days' approval.

Did you say "ship"?

The Walton Company
Hartford, Conn.



At Last—The Perfect Drill Chuck

**With Real Quick Change
And Broken Tang Collet**

Simply strike the end of drill, and out it comes. No hammer needed—no separate key. And it uses up drills with broken tangs.

The Titan Drill Chuck

has a positive drive, and operates in any position. Made in sizes Nos. 0 to 5, for any taper shank drill, counterbore, reamer, etc. Saves time, drills and cost.

Write for descriptive price list

Titan Tool Company
Erie, Penna.

Thor

Electric Drills —

**Always Ready When
You Need It!**



THE reason THOR Electric Drills give such dependable service is because they are the best that mechanical ingenuity, modern engineering practice, high-grade materials, and skillful workmanship can produce.

Their rugged construction, easy running parts, ball and roller bearings, Jacobs Chuck, double-silk hand-wound coils, and other similar high standard parts, insure long and dependable service.

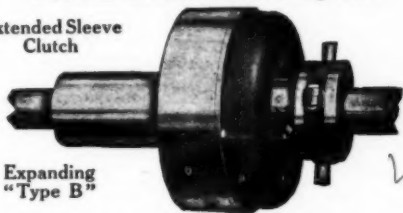
Complete specifications are given in our new catalog, just off the press. Investigate the savings that are possible with a THOR. Write for our catalog today.

Independent Pneumatic Tool Co.
600 W. Jackson Blvd., Chicago, Ill.

Edgemont Friction Clutches

For All Transmission Purposes

Extended Sleeve
Clutch



Expanding
"Type B"

This clutch is designed for driving wood, steel or cast iron pulleys, gears, drums, rope sheaves, sprocket wheels, etc., on the sleeve. Edgemont Friction Clutches are made for all transmission purposes. Glad to advise on your needs—right now.

Edgemont Machine Co., Inc., DAYTON, OHIO

Do Your Taps Ever Break?

Then you owe it to your shop to at least try out the device which has made good in thousands of other shops—

The Woodstock Improved No-Tap-Breakage Chuck



It automatically releases the instant it binds or strikes bottom. Enables you to utilize 95% of the strength of tap without breaking it. Can be used with any automatic reverse, reversible drill press, tapping machine or lathe.

Write for details and trial offer

Peter Bros. Mfg. Co., 115 Railroad St., ALGONQUIN, ILL.

U. S. Sensitive Motor Driven 14" Floor Drill

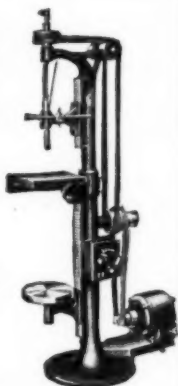
A simple, rugged, convenient drill built by machine tool manufacturers for the quick and accurate drilling of holes $\frac{1}{2}$ " and smaller.

Price with motor, switch and belts. **\$115**

Or without motor, switch and belts. **\$70**

Steel spindle, ground to size, with ball thrust bearing; vertical adjustment to head; tables for long and short work; three speeds, etc. Send in your order, or write for folder.

The U. S. Machine Tool Co.
1952 W. 6th St., Cincinnati, Ohio



Sigourney Sensitive Drills

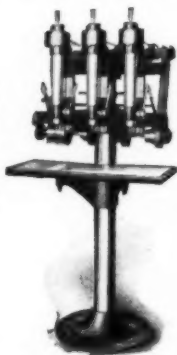
Plain or Ball Bearing
Belt or Motor Drive

Sigourney Sensitive Drills are *quality products*, extremely sensitive, accurate and durable, with all parts interchangeable.

The illustration shows a Sigourney ball bearing, high speed drill press, made with one to four spindles, to be operated up to 5000 r. p. m. The ball bearings are self-aligning, in double row.

Write for circulars and prices

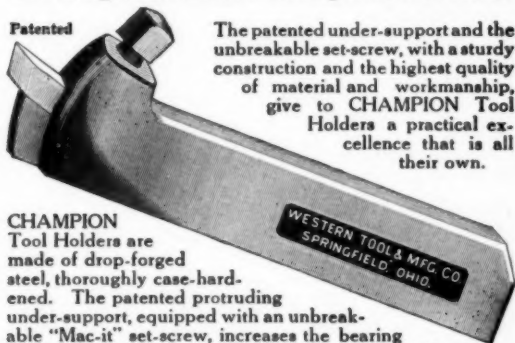
Sigourney Tool Co.
Hartford, Conn., U. S. A.



Champion Tool Holders

Turning Tools — Boring Tools — Planer Tools
Cutting-Off Tools—Threading Tools
Grooving Tools and the Champion Drill Holder

Patented



The patented under-support and the unbreakable set-screw, with a sturdy construction and the highest quality of material and workmanship, give to CHAMPION Tool Holders a practical excellence that is all their own.

CHAMPION

Tool Holders are made of drop-forged steel, thoroughly case-hardened. The patented protruding under-support, equipped with an unbreakable "Mac-it" set-screw, increases the bearing for the cutter 40 to 70 per cent, with a corresponding increase in cutter economy. It also absorbs the heat from the cutter and permits heavier cuts, with less breakage.

Patented



Champion Boring Tool

This tool is indispensable for inside threading and boring. Takes any length of cutter, which may be used down to short lengths. Cutters, drills, reamers, taps and many other tools can be used in this Holder.

Write for new Catalog and Price List

The Western Tool & Mfg. Co.
Springfield, Ohio

The "Utility" Sleeve

A Detachable
Taper Shank
for
Straight
Shank
Tools



Cuts
Small
Tool Costs

Insert a straight shank drill or reamer in this Sleeve, and it works as efficiently as a solid taper shank tool.

Only the straight shank tool of high speed steel is discarded when worn or broken—not the entire taper shank tool. Cuts tool costs, saves time, increases output.

Write for "Utility Tools" Catalog

The J. C. Glenzer Company
6469 Epworth Blvd., DETROIT, MICH.



Multiple Drilling In ANY PATTERN On a Single Spindle

You can do so much more work and cut down your drilling costs with an up-to-date

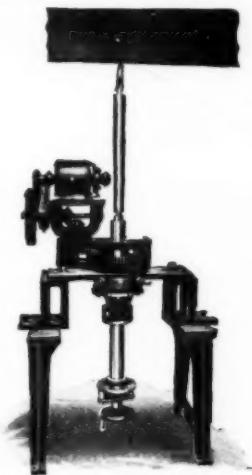
**U. S. Multiple Spindle
Drill Head**

Made regularly with 2 to 6 adjustable spindles. Special Heads made to your order, with adjustable or fixed spindles.

*Let us help you make
a worth-while saving*

The United States Drill Head Co., 1952 W. Sixth St., CINCINNATI, O.
Michigan Agents—National Sales Engineering Corp., Detroit, Mich.

Something New



The Pedrick Boring Unit

This picture of drilling an overhead beam is only an indication of what the Boring Unit can do. It is intended more for other work than for drilling, but to get the whole story, write for a circular.

The Boring Unit removes the limitations from the portable boring bar, and reaches a field of work that otherwise requires the largest machine tools.

Pedrick Tool & Machine Co.

3644 N. Lawrence St., Philadelphia, Pa.

Builders of Portable Cylinder Boring Bars, Crank Pin Turners,
Portable Millers, Pipe Benders, etc.

Steel Spacing Washers—

Made of a good grade of Cold Rolled Strip Steel, also known as Shim Steel



Stock sizes for arbors of following diameters: $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, 1, $1\frac{1}{8}$, $1\frac{1}{4}$, $1\frac{3}{8}$, $1\frac{1}{2}$, 1 $\frac{5}{8}$, $1\frac{3}{4}$, 1 $\frac{7}{8}$, 2, $2\frac{1}{4}$, $2\frac{1}{2}$, 3, $3\frac{1}{2}$ and 4 in. and larger.

Stock thicknesses: .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .032, .047, .063, .093 and .125 inch.

Other thicknesses up to 3.000" made to order, with keyways if so ordered.

Ask us to send samples; you'll like them

Detroit Stamping Company
3443 West Fort St., Detroit, Mich.

Save Time Setting Gang Milling Cutters



Hardened
and
Ground

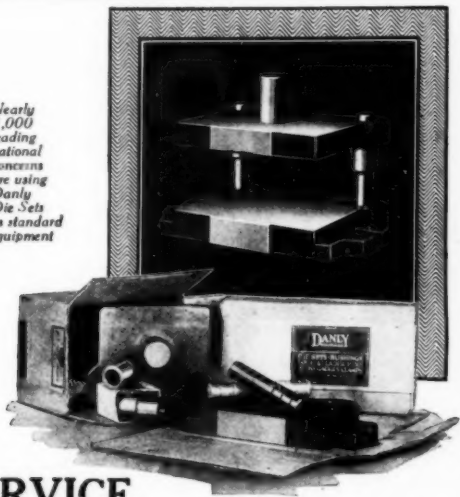
PATENTED

"Wear-Ever" Adjustable Spacing Collars permit setting cutters to the thousandth part of an inch without removing from the arbor.

Stock sizes for $\frac{1}{4}$ " to $2\frac{1}{2}$ " arbors, sent on approval
They are adjustable in 12 steps of $2/1000$ inches

SCULLY-JONES & CO. TOOL DIVISION
13th and Robey Streets CHICAGO, ILL.

Nearly
3,000
leading
national
concerns
are using
Danly
Die Sets
as standard
equipment



SERVICE

Everyone of the 12 types and 97 sizes of Danly Standard Die Sets can be obtained from stock, completely assembled, ready for immediate use, or in the "knock down."

Each is a precision tool with every known refinement in design, material and workmanship. All parts are standardized and interchangeable—the last word in flexibility, economy and convenience. Endorsed by nearly 3,000 nationally known users.

*Write, wire or 'phone nearest warehouse.
Send for 34-page illustrated catalogue.*

Danly Machine Specialties, Inc.
4913 Lincoln Ave., CHICAGO

Detroit, Mich.
1537 Temple Ave.

Long Island City, N.Y.
35 Wilbur Ave.

DANLY
STANDARD

For Sure Balance--

an absolutely level and solid "Way" is necessary

Bowsher "Balancing Ways"



are brought to an absolute *level* in ten seconds. No revolving parts.

The edges or "knives" upon which the work is tested are ground *true*, and are mounted upon the planed "ways" of a heavy bed or frame.

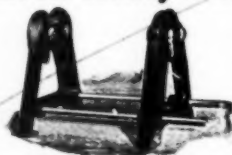
Standards adjustable to suit length of arbor.

Three sizes for floor—one for bench use

Send for Catalog "F"

The N. P. Bowsher Co., South Bend, Ind.

The Anderson Improved Ever-Ready Balancing Ways



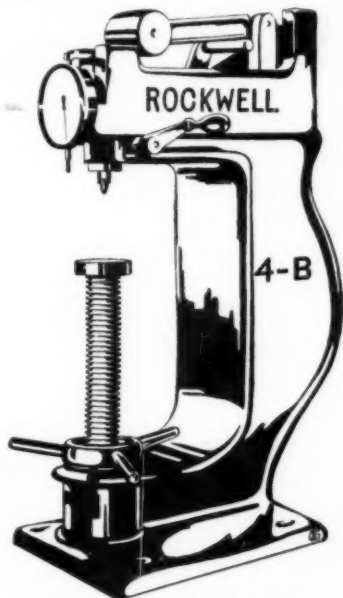
For quickly balancing 'most anything that revolves, up to 24,000 lbs.; for testing straightness of shafts, crank-shafts, etc. Always ready; no centers or leveling required. Glass-hard spindles do not lose accuracy; chilled iron discs; sensitive bearings.

"Swing"	20"	40"	60"	72"	96"	72"
Greatest distance bet. standards	20"	30"	30"	66"	88"	20'
Capacity in lbs.	1000	2000	2000	5000	10000	24000
Approx. shipping weight	45	90	150	350	650	
Code	Rea	Mid	Rea	Bib	Ben	

Any of above can be furnished with longer shafts

Anderson Bros. Mfg. Co.

1915 Kishwaukee St., Rockford, Ill.



One of the 7 Sizes of

ROCKWELL HARDNESS TESTERS

For testing large dies use either the 3-B or 4-B Rockwell.

If there is not a Rockwell in your tool room you are lagging behind the practice of the best shops.

WILSON-MAEULEN COMPANY INC

Our Representatives have Demonstration Testers
St. Mary's St. & Concord Ave., New York City

The BARKER GENERAL PURPOSE VISE

For Planers, Shapers, Drilling and Milling Machines



Two Sizes

Width of jaws $11\frac{1}{2}''$ — $12''$
Depth of jaws $2\frac{1}{2}''$ — $3''$
Jaws open $8''$ — $12''$
Weight 180—210 lbs.

Also 16" Mold Makers' Vise

OUR MOLD MAKERS' VISE has 13" width of jaws, 7" depth, and jaws open 16"—weight 290 lbs.

ALL BARKER VISES are made extra heavy, with steel faced jaws, and are graduated to swivel any angle. They stand lots of hard usage.

Get in touch with us before buying

WM. BARKER & CO.

Manufacturer of Machine Tools,

COVINGTON, KY.

"D & W" Rotary & Flat Magnetic Chucks



*Are Great Time
and Labor Savers*

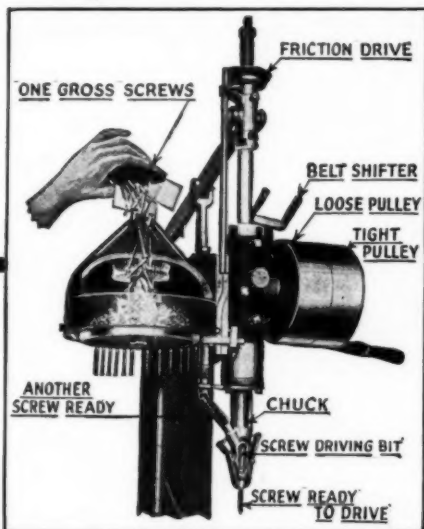


You will find our line a revelation in practical efficiency, as they hold an immense variety of steel and iron pieces for grinding, planing, shaping, milling. Our rotary chucks are very successful in plants making ball and roller bearings; especially good to hold ball races when being ground to finished size. Our attachments convert a flat chuck into a Vertical, Taper or Swiveling type, as wanted.

Special chucks to order. Folder and price list on request

J. & H. Electric Co., Inc., 161 Clifford St.,
Providence, R. I.

It Magazines the Screws



Showing the Magazine Feed of the Reynolds Automatic

If you study the above illustration, you will readily see why the Reynolds Automatic Power Driven Screw Driving Machine enables a boy or girl to drive 800 to 1,200 screws an hour.

The operator's hand needn't touch a screw. He pours a gross or more of them into the hopper, handles his work with both hands, and presses a foot lever—that's all.

Tell us dimensions over all of your work, with gauge and length of screws used, and we'll submit our proposition.

The Reynolds Machine Company
Dept. H. H., Massillon, Ohio

Jack
Chase

The Adolph Muehlmann Portable Motor Driven Sensitive Drilling

Where sound economy is the goal, the equipment that does the job, or excessive cost is sure to result.

Delicate vertical spindle work calls for a machine that is constructed for the purpose, if scrap, broken tools and excessive cost are avoided.

The A. M. Sensitive Drilling Machine covers all the small sensitive vertical spindle machine. It is sufficient to drill holes as small as .010" in diameter, yet sturdy enough for production work—a valuable addition to the equipment of the laboratory and assembling department.

The A. M. Sensitive Drilling Machine is a 60 lb. motor sensitive bench drill of great merit—a machine that you can get by asking for printed matter.

ADOLPH MUEHLMANN, S. E. Cor. 5th

*This advertisement is
in the interests of good Drilling
by the makers of the*

Modern equipment



tt Portable ling Machine

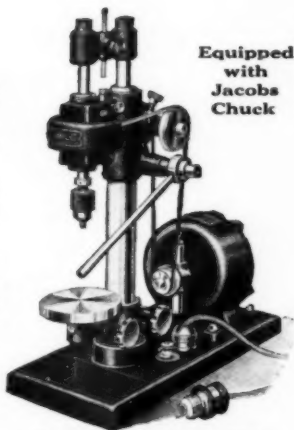
equipment should be suited to

machine that is properly con-
s and excessive costs are to be

covers all the requirements of
It is sufficiently sensitive to
sturdy enough for continuous
equipment of the tool room,

60 lb. motor driven, portable
e that you can know all about

Equipped
with
Jacobs
Chuck



. Cor., 5th & Elm Sts., CINCINNATI, OHIO

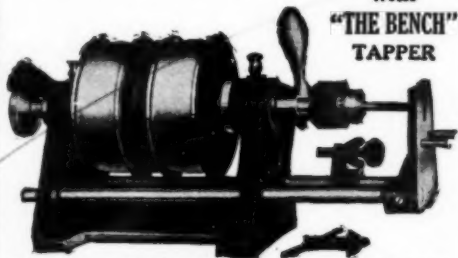
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Drilling Equipment
the Jacobs Chuck

equipment is profit assurance



2 Seconds per Tapped Hole

with
**"THE BENCH"
TAPPER**



$\frac{3}{8}$ Capacity **\$55.00** Complete f.o.b. Philadelphia

THE BENCH MACHINE TOOL CO.

Makers of "THE BENCH" Rod Cutters
222 N. 13th Street, Philadelphia, Pa.

SOMETHING NEW



**Hand Power Presses, Shears, Notchers,
Punches and Dies, Etc.**

Write for Booklet

J.F. Kidder Mfg. Co., Burlington, Vt.



PEERLESS SURFACING MACHINES

for
Grinding and
Finishing
FLAT PARTS

Take
a
rapid
cut
and
leave
a
perfect,
straight-
grained
finish

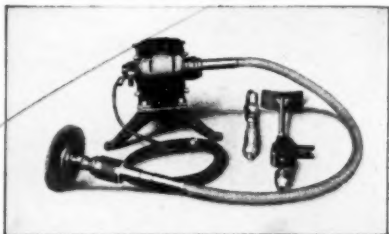
Also made in horizontal models. . Write for large folder.

PEERLESS SURFACING MACHINE CO., Inc.
TROY, N. Y.

In Canada: A. R. WILLIAMS MACHINERY CO., Toronto

The Whirlwind Buffer and Grinder

Will cut the cost on any unhandy grinding or polishing job

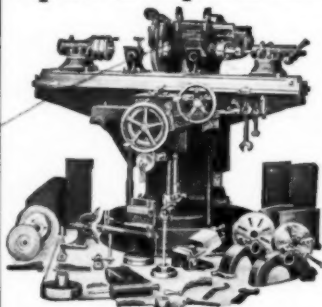


Send for our latest bulletin

Stow Flexible Shaft Co., 3454 Ludlow St., Philadelphia, Pa.

The Best Since 1876

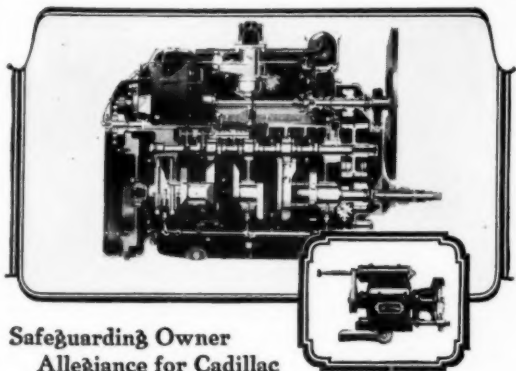
Speeds Up ALL Grinding



Six machines in one — that's the Thompson! Saves time and money because it is so efficient on practically all kinds of grinding. Work adjusts to a fixed grinding wheel, an exclusive feature.

*Write for
BULLETIN*

Manufactured By
THE THOMPSON GRINDER CO., - Springfield, Ohio



Safeguarding Owner Allegiance for Cadillac

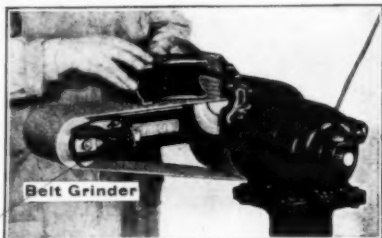
CADILLAC'S endorsement by those it serves is a precious thing. So Cadillac's production is necessarily safeguarded by the most exacting standards. That Dumore grinders are to be found among the precision tools directly responsible for the famed close limits of Cadillac production is a splendid endorsement of their worth.

Unlike Cadillac, perhaps, your requirements do not call for limits as close as .0001. Nevertheless, if you make jigs, dies, gages and other hardened tools, you can use Dumore grinders to advantage. Six styles and sizes—with individual speed ranges—provide a grinder with the correct cutting speed for any grinding need. Dynamic balance and smooth operation of Dumore grinder motors eliminate vibration. Ability to operate on alternating or direct current assures constant usage even in shops supplied with two varieties of power current. Portable, they can easily be taken to the job—saving the cost of tearing down expensive set-ups.

A word to us will bring further facts that show why these sturdy tools are so desirable to own. Why not send for this data and our new catalog today?

Wisconsin Electric Co., 43 Sixteenth St., Racine, Wis.

DUMORE HIGH SPEED GRINDERS



Belt Grinder

For straight grain surfacing on metal, wood, fibre, etc.; it quickly cleans up castings, removes burrs and saves hand filing. Bed easily changed to vertical position. Motor driven from lamp socket.

Ask us about its unusual features.

PORTER-CABLE

Machine Company
Syracuse, N. Y.

Patented
Jan. 30, 1917



New "AUTEX" Extension Reel 1925 Model

Don't Forget the Swivel Joint Feature

Permits of carrying the lamp
in any direction.

Type 6 Rapidly finding a place in large
Industrial Plants, Machine
Shops and Service Stations.

Now equipped with Belden Rubber Cord
Approved by the Underwriters

Write for descriptive circular

The Cincinnati Specialty Mfg. Co., Inc.
1903 Powers St., Cincinnati, Ohio

Why Continue The Waste?

The "Good Enough" of Yesterday
HAS BEEN OUTCLASSED
In Methods for Truing Grinding Wheels

The largest factories in the U. S.
are adopting our truing tools and
are saving at least one-half of
their former diamond cost.

You Can Do the Same

Any good mechanic can use these
tools successfully by following the
simple instructions.

The Saving is Worth While

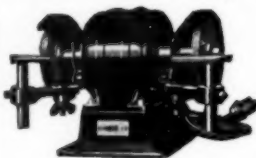
The tools are not an experiment, as
one concern has several hundred
of them in use every day and there
are scores of concerns using them
on their best work.

BETTER—FASTER
and Decidedly Less Cost

Ask us for information

The Precision Truing Machine & Tool Co.
CINCINNATI, OHIO

Make It Easy For your workmen to keep your tools sharp



**A BODINE
Portable Electric
TOOL GRINDER**

—placed in every department of your plant is a big aid in keeping production at its maximum.

"BODINES" are highly specialized machines for putting the keenest cutting edge on tools in the shortest time. When placed in handy locations throughout the plant, it always results in sharper tools and better production.

"BODINES" are equipped with "SKF" ball bearings, heavy wheel guards, tool rests adjustable to any position, an ideal oiling system, etc., etc. Write for a copy of "*Eight Outstanding Advantages.*"

The Bodine Electric Company
2256 West Ohio St., Chicago, Ill.

Steel Bearing Balls

**Brass, Bronze, Aluminum
and Monel Metal Balls**

**Steel
Burnishing
Balls**



**Burnishing
Cones**

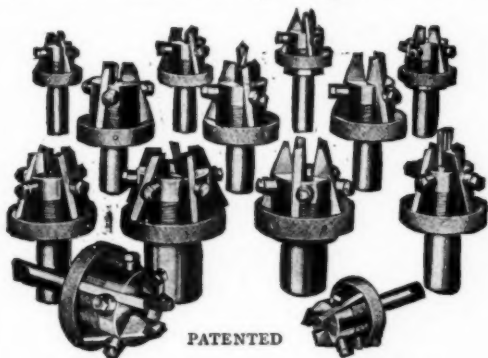
**Burnishing
Pins**

Immediate Shipments from Stock

Ask for Price List 23-H

The Abbott Ball Company
Elmwood District, Hartford, Conn.

Ideal for Many Operations



Genesee Adjustable Hollow Mills

SUPERIOR for finishing forgings, castings, etc. They are easily and quickly adjusted to the 1000th of an inch, and are designed to utilize machines to their full capacity. When worn, the blades can be replaced at very small cost.

EASILY FITTED with drills and reamers, have formed blades, etc. The blades can be ground any angle to point work and turn short tapers. They cut up to 15" a minute in steel, are stronger than solid tools, and cannot change in size.

SEVEN SIZES cover all work from $\frac{1}{8}$ " to 2". The Genesee is now made in six styles, from the heavy roughing Style "B" to the accurate finishing Style "F." We also make Style "N" Mills for all Brown & Sharpe automatics. We can make special sizes and styles to your order, at prices that mean real economy.

As all round cost reducers Genesee Mills are a revelation to users everywhere. We invite your correspondence.

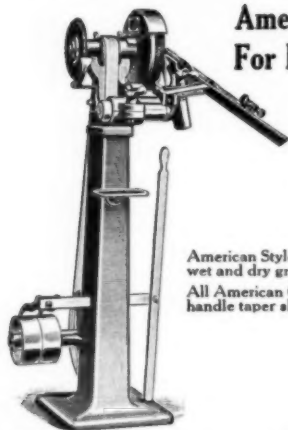
Genesee Manufacturing Co., Inc.
Rochester, N. Y., U. S. A.

Manufacturers of Genesee Rapid Production Tools.

Est. 1908

La Salle Grinders

**American Style C T A
For Dry Grinding Only**



Unexcelled as a dry grinder for twist drills. Extra large drill holder has capacity from 1" to 3½".

American Style W T A is arranged for both wet and dry grinding.

All American Grinders are now equipped to handle taper shank drills.

No. 1 Plain and Surface Grinder

(Micrometer Adjustment)

Grinding wheels.....	8"x1"
Between wheels.....	15"
Height to spindle center.....	40"
Table surface.....	8"x14"

Has vertical travel of 12" on guides, ¾" by micrometer, and may be raised to within 2" of spindle center. Wheel grinds to center of a surface 9" wide.



Let us know your grinding requirements

LaSalle Tool Company
LaSalle, Illinois, U. S. A.

Second-Hand Machinery

Lists of Second-Hand Machinery, either For Sale, Wanted or For Exchange, set in uniform style, will be published under this heading at the rate of **50 cents a line**, across the page, each issue, plus **\$2.50** for name and address. Minimum charge, **\$5.00**. No display permitted in this department.

Write directly to those offering the machines for sale for prices and full descriptions. If what you seek is not listed, use the blank enclosed to make known your wants to the publisher, who will pass them along to all Machine Tool Blue Book advertisers.

Circulation of Machine Tool Blue Book, 25,000.

WANTED BY

Frank E. Artz,

23 S. Jefferson St., Chicago, Ill.

BEVEL GEAR PLANNER.

I am in the market for a 36" Gleason bevel gear planer.

FOR SALE BY

Bennett Machinery Co.,

30 Church St., New York City

Cold saw, 42" heavy duty Newton.
Gap lathe, 18"/28"x8' South Bend.
Drills, 14" to 26" Barnes & Rockford
Miller, No. 6 Fox, plain, cone head.
Miller, No. 4 Brown & Sharpe, plain.

Pipe machine, 8" Saunders.
Planer, 54"x12' Pond, 4 heads.
Planer, plate, 18' Niles.
Shaper, 20" Walcott, bk. grd., crank.
Turret lathe, 3"x36" Jones & L.

WANTED BY

Box 36, Care A. H. Hitchcock,

1235 Caxton Bldg., Chicago, Ill.

We are in the market for the following machines:

One Warner & Swasey or equal turret lathe. Must be in A-1 condition, with bar and chucking equipment.

One 20" by about 14' heavy duty modern lathe.

Both cone pulley drive. Send full details.

FOR SALE BY

Rosenfeld Machinery Co.,

942 W. Lake St., Chicago, Ill.

Bench drills, b. b., Leland-Gifford.
Chain hoists, 1 to 12 tons, Yale & Towne and Ford triplex.
Drill presses, all sizes.
Milling machine, vertical, Becker model C. S.

Millers, hand, Van Norman No. 1.
Motors, a. c., all sizes, 3 ph., 60 cy.
Motors, a. c., 3 ph., 25 cy., 1/4 to 50 h.p.
Radial drill, 2' American.
Tumbling barrels, 2 compartments, 6"x15" each, for small work.

FOR SALE BY

Badger-Packard Mchy. Co.,

133-39 Water St., Milwaukee, Wis.

Brake, 5' Chicago.....\$ 105.
Circle shear, 30" or 60" Quick-work.....each 125.
Drill, 14" Demco b. b.....160.
Gear generator, 6" Billstrom.. 450.
Hammer, No. 3-A H. S.195.
Lathe, 24"x14' Porter..... 550.

Lathe, 20"x8', q. c.....\$ 525.
Lathe, 18"x10', loose c. g. 375.
Lathe, 16"x8' Cisco, q. c. 375.
Lathe, 14"x6' Bradford, q. c. 325.
Shaper, 16" G. & E., b. g. 400.
Shaper, 20" Kelly, plain..... 450.
Shaper, 24" Steptoe, b. g. 800.

SECOND-HAND MACHINERY

FOR SALE BY

Cyril J. Bath & Co., E. 70th & Mch. Ave., N. E., Cleveland, O.

BORING MILLS—VERTICAL.

- | | |
|--|---|
| 42" Baush, 2 swivel heads, 75%. | 7' Betts, double head, 85%. |
| 42" Bullard rapid production, with one swivel and one turret hd., 80%. | 60" Niles, 2 swivel heads and one internal boring head. |

BORING MILLS—HORIZONTAL.

- | | |
|--|---|
| No. 21 Lucas, table type, 75%. | No. 35-A Landis, floor type, horizontal, 90%. |
| No. 36 Landis, floor type, 3½" bar, 80%. | |

DRAW BENCHES.

- 15,000 lbs. to 25,000 lbs. Waterbury-Farrel, United Engineering and Standard; 20" draw, with 18' extensions for mandrels, heavy cast iron; 85%.

DRILLS—MULTI-SPINDLE.

- 4-spindle 30" Barnes, 85%. | 4-spindle Barr sensitive, 85%.

DRILLS—RADIAL.

- 5' Bickford plain. | No. 1, 8' wall radial.

DRILLS—UPRIGHT.

- | | |
|---|--------------------------------------|
| 24" Cincinnati, slid. hd., fric. bk. grs. | 32" Cincinnati, with tap. att., 75%. |
| 25" Cincinnati, sliding head, 80%. | 24" No. 25 Foote-Burt, 90%. |

FORGING MACHINES

- | | |
|---|-------------------------------------|
| 1" Ajax, steel bed, 90%. | AND BULLDOZERS. |
| 1" Ajax, cast iron bed, (3), 75%. | No. 4 Williams & White, bulldozer. |
| No. 5 Ajax high speed, stop motion bulldozer 14" stroke, 40 strokes per minute. | No. 6 Williams & White, 20" stroke. |
| | 4" Acme, steel bed, 90%. |
| | 250-ton Mesta steam hydraulic, 85%. |

GRINDERS.

- | | |
|--------------------------------------|--|
| No. 3 Brown & Sharpe univ., 70%. | 18x96" Norton plain, 75%. |
| 10x36" Modern univ., and parts, 70%. | Mammoth shear blade grinder, capacity 100" long. |
| 64" Diamond surface, 85%. | |
| No. 4 Gardner, motor, disc, 85%. | |

HAMMERS.

- | | |
|---|--|
| No. 2 Nazel, air, arranged motor dr. | 1500-lb. Waterbury-Farrell, board drop, 80%, (2). |
| 100-lb. Bradley, helve, 75%—90% (3). | 2000-lb. Waterbury-Farrell, board drop, 80%, (2). |
| 350-lb. Bement-Miles, steam forging. | 2500-lb. Bement-Miles, stm. forging. |
| 800-lb. Bement-Miles, steam forging. | 8000-lb. Chambersburg, stm. forging. |
| 800-lb. Billings & S., board drop, 75%. | 800-lb. to 4000 lb. Chambersburg and Massillon steam drop hammers. |
| 800-lb. Waterbury-F., board dr., 75%. | |
| 800-lb. Lane, steam forging. | |
| 1500-lb. Lane steam forging. | |

LATHES.

- | | |
|--|---|
| 16" to 20" tool room, various lengths. | 32"x32' Bridgeford, comp. rest, m. d. |
| 25"x10' Prentice, geared head, 85%. | 36"x44' Bridgeford, c. r., m. d. |
| 25"x14' LeBlond heavy duty, (3). | 48"x26' Bridgeford, grd. hd., t. a., 85%. |
| 27"x22' Bridgeford, pl. turning, m. d. | 54"x34' Houston, Stanwood & Gamble, geared head, motor drive. |
| 30"x22' Bridgeford, pl. turning, m. d. | |
| 32"x18' Schumacher, cone head, 60%. | |

MILLING MACHINES.

- | | |
|---------------------------------------|--|
| Style "B" Goo'ley & Edlund, 80%, (2). | Becker miller, model "C," table 14"x54", motor drive, 85%. |
| No. 2 Cincinnati plain, 80%. | 60"x42"x16' Ingersoll, fixed rail, 4hds. |
| No. 3 Brown & Sharpe, plain, 65%. | |
| No. 3B Brown & S., pl., heavy, 60%. | |

PLANERS.

- | | |
|-------------------------------------|--|
| 30"x30"x8' Gray, single head, 80%. | 60"x48"x16' Pond, 2 hds., old style, light pattern, 50%. |
| 72"x72"x16' Betts, four heads, 90%. | |

PIPE MACHINES AND BOLT CUTTERS.

- No. 94 Merrill, capacity 2½" to 8".
 2" Acme double head bolt cutter.
 2" Jarecki with countershaft.
 4" & 8" Jarecki, with dies and countershaft, late model, 85%.

PRESSES.

- Waterbury-Farrel trimmers, 56" flywheel, 4" stroke, 60%, (3).
 No. 57 Toledo trimmer, with side shear, 80%.
 Waterbury-Farrel trimmers, 60" flywheel, 80%, (2).
 No. 59 Toledo, double geared, 10" stroke.
 59½ Toledo, straight side, single crank, tie rod frame, 80%.
 No. 86 Consolidated, 4" stroke, 80%.

SECOND-HAND MACHINERY

Cyril J. Bath & Co.—Continued

PUNCHES AND SHEARS.

- No. 2 Hilles & Jones horizontal punch, 70%.
 54" gap American ship punch, capacity 1" thru 1", 70%.
 6"x6"x1" Hilles & Jones double angle shear, arranged motor drive.
 No. 4 Long & Allstatter slitting shear, geared, 15" throat, capacity 4"x3" flat or 1" round bars.
 84" throat, Long & Allstatter capacity about 1" thru 1".
 Kling Bros. horn press, 60" horn, flywheel 50" dia., 64" face.
 48" throat No. 4 Southwark, capacity 2"x1 1/2".
 48" throat No. 5 Southwark, capacity 2"x1 1/2".
 60" throat No. 5 Southwark, capacity 1 1/2"x1 1/2".
 36" throat style G, Cleveland, capacity 1 1/2"x9" flat or 2 1/2" round bars.
 No. 6 Quickwork rotary shear, capacity up to 1 1/2" plate.
 36" throat Lennox rotary shear, capacity about 1" plate.

SAWS.

- 48" Newton cold saw, motor drive. | Power hack saws, 6" to 9".

SHAPERS.

- 20" American, crank, belt, 80% | 32" Gould & E. invincible type.
 24" Walcott, crank, back geared, 80%.

SLOTTERS.

- 10" Newton, with countershaft, 75% | 12" Sellers, 75%.

TUMBLING BARRELS.

- Several sets 19"x48" chill lined square, with roller bearings and exhaust.

TURRET LATHES AND SCREW MACHINES.

- 21" Gisholt, standard model, 70% | 7-A Potter & Johnston automatic.

MISCELLANEOUS.

- Acetylene generator, Davis.
 Blower, No. 4 Root, motor drive.
 Blower, American, 9' fan, motor driven, 85%.
 Blowers, Sturtevant, motor driven, 85%, (2).
 Boring machine, for cylinders, portable, 4" bar, 7" feed, arranged for motor or engine drive, 75%.
 Gear cutter, 36" Gould & Eberhardt, 60%.
 Gear hobbers, No. 12 Barber-Colman, 90%.
 Keyseater, No. 2 Davis.
 Keyseater, No. 4 Mitts & Merrill.
 Riveter, Hanna I-beam frame, 12" gap, 90%.

FOR SALE BY

Star Foundry Co., - 214 Front Street, - Albert Lea, Minn.

Owing to changes in manufacture we offer:

- | | |
|--|--------|
| Air compressor, 6"x6" dbl. cyl. Curtis, tank, 12 h. p. gas engine, 200' hose with couplings, one No. 80 Cleveland hammer, 1-1 1/2" air drill, all mounted on steel truck, portable. Price..... | 500. |
| Boiler, 50 h. p. vertical, 120 lb. pressure. Price..... | 125. |
| Bolt and pipe cutter, Wiley & Russell, 3/4" to 1 1/2" bolts, 1/2" to 2" pipe. c.s. | 200. |
| Drill press, 20" Champion, lever, wheel & power fd., bk. grs., with ck. | 75. |
| Grinder, drill, Sellers, with wheel..... | 50. |
| Grinder, 36" knife, 16" wheel..... | 75. |
| Grinder, Schmidt cyl., c. s., blower and hose..... | 400. |
| Hammer, 300 lb. upright power..... | 350. |
| Keyseater, Fidelity, 5 knives..... | 75. |
| Lathe, 22"x8", rise and fall rest, 2 face plates, 2 chucks, steady rest, change gears, double friction c. s., Armstrong tools..... | 200. |
| Lathe, 34"x16", compound rest, p. c. f., dbl. friction c. s., chuck, 2 face plates, steady rest, change gears, raising blocks to swing 60", boring bars, Armstrong tools complete. Price..... | 400. |
| Motor, 20 h. p. Gen. Elect., a. c., 220 v., 3 phase, 3600 r.p.m., with starter | 100. |
| Planer, 48"x48"x14" Niles, 1 head, c. s. Price..... | 500. |
| Saw, 5"x5" power, Railway Appliance..... | 12. |
| Screw press, 20-ton..... | 50. |
| Set of Patterns, 6 sizes, flasks, jigs, blue prints for Star Power Hammers | 1,200. |

Nearly all above machinery is under belt and can be inspected at our plant.

All are in good working order.

SECOND-HAND MACHINERY

FOR SALE BY

McDonald Machinery Co.,

1531-33 N. Broadway, St. Louis, Mo.

Clock, electric time system.
Demagnetizer, Walker.
Drills, Lel. Gif. 1-2-3 sp., h. s., b. b.
Drill, Detroit 5-sp. horiz.
Drill, Rockford horiz. boring & drill.
Furnace, Holcroft 92 k.w. annealing.
Lathes, Davis 22"x10', Bridgeford 27x9, Walcott 18x8, q. c.
Milling machines, Hendey No. 2G univ.; LeBlond No. 4 heavy plain; Ohio No. 20 pl.; 1-Knight vert. mill & drill; Becker "SD" vert., rotary table, 17200 lbs.; Ohio No. 42 plain.
Saw, Nutter Barnes 6" cold.

Planers, Sellers 36"x36"x23', 2 heads;
Pond 42"x42"x16', 2 heads.
Punch presses, Consolidated No. 67 geared, wt. 30,000; Ferracute No. 2, straight back; Swaine No. 40 arch.
Punches, Felber 1" in 1", and Slitt shear; Scully, 20" throat, 1" in 1".
Shaper, 26" open side planing; 15" Smith & Mills; 15" Kelly; 16" Milwaukee, b. g.; 7" Rhodes.
Shears, 60" thrt. rotary slitting, (2).
Torches, 50 vapor blast heat, new.
Welders, 20 k. w. spot, Toledo, (2).
Welders, butt, Federal, 1" rds.

FOR SALE BY

Reliance Machinery Sales Company

Brighton Road at Pennsylvania Ave.,

Pittsburgh, Pa.

Bolt cutter, 2" National, single hd.
Bolt cutter, 3" Landis, single head.
Boring mill, 24" Bullard, rapid prod.
Boring mill, 30" Bullard, 1 head.
Boring mill, 34" Colburn, 1 head.
Boring mill, 42" Bullard, 2 heads.
Boring mill, 42" King, m. d.
Boring mill, 54" Bullard Maxi, m.d.
Boring mill, 72" Betts, 2 heads.
Brake, 60" Dreis & Krump, cap. 14 ga., m. d.
Bulldozer, No. 5 Williams & White.
Die slotter, 38" stroke, Garvin.
Drill, 20" Barnes, camel back.
Drill, 24" Hoefel, sliding head.
Drill, 36" Snyder, sliding head.
Drill, 2' 6" Carlton high speed radial.
Drill, No. 310 Baker heavy duty.
Gear cutter, 36"x10" G. & E., s. p. d.
Lathe, 12"x 6' Seneca Falls.
Lathe, 14"x 6' Seneca Falls, q. c. g.
Lathe, 14"x 6' Hendey, tie bar.
Lathe, 14"x8' Whitcomb-Blaisdell.
Lathe, 16"x8' Hendey, tie bar.
Lathe, 17"x8' Sidney, hvy. duty, q. c. g.
Lathe, 18"x8' Lodge & Shipley, q. c. g., m. d.
Lathe, 18x10' Reed, q. c. g., d. b. g.
Lathe, 24"x12' Reed-Prentice, s. p. d.
Lathe, 30"x12' Johnson, triple grd.
Lathe, 34"x12' LeBlond, triple grd.
Lathe, 36"x20' Pond, geared head.
Lathe, 36"x34' Bridgeford, m. d.
Miller, No. 1 U. S., complete.
Miller, No. 2 Cincinnati h. p. vert.
Miller, No. 2 Cincinnati plain, v. a.
Miller, No. 3 Hendey plain.
Miller, No. 29 Oesterlein universal.
Miller, No. 4 Oesterlein universal.
Millers, Sellers, Lincoln type, (2).
Miller, model "B" Becker, vert., s. p. d.
Miller, model "C" Becker vertical.

Miller, No. 2 Knight.
Nut tapper, 2" National, 6-spindle.
Pipe machine, 1/2" to 2" Armstrong.
Pipe machine, Jarecki, cap. 1" to 4".
Pipe machine, Bignall & Keeler, 1/2" to 2", m. d.
Pipe machine, Merrill, 1 1/2" to 6".
Pipe machine, Merrill, 2 1/2" to 12".
Planer, 24"x24"x 6' Gray, 1 hd.
Planer, 30"x30"x10' Woodward & P.
Planer, 36"x36"x8' Cincinnati, 1 hd.
Planer, 36"x36"x10' Gray, rev. m. d.
Planer, 72"x72"x18' Detrick & Harvey open side, m. d.
Press, No. 10 Bliss, reducing, 4" str.
Press, No. 23 Stoll, homing.
Presses, Nos. 61 & 62 Bliss, o. b., f. w.
Press, No. 87 Niagara, screw press.
Press, Ferracute DD2, o. b. l., cam.
Press, No. 65 Consolidated, 5 1/2" str.
Press, No. 59 Toledo, s. s., d. g. 10" str.
Press, No. 168 Toledo toggle.
Press, No. 305 Bliss straight sided.
Press, No. 5-A Bliss, toggle.
Press, No. 13-A Bliss, toggle.
Punch, Reade s. e., 1/2" x 1/2", arch. jaw.
Punch, type "C" Cleve., arch. jaw.
Punch, Wickes, 48" thrt., cap. 14"x1".
Reduction gear, Foote, 50 to 1.
Saw, No. 8 Marvel metal band.
Saws, American metal sw., m. d., (2).
Screw mche., No. 2 W. & S., pl. head.
Shaper, 24" Springfield, b. g. crank.
Shaper, 24" G. & E. b. g. crank.
Shear, No. 2 Quickwork rotary.
Shear, 72" Niagara sq., cap. 14 ga.
Shear, 72" Wais & Roos, 12" gap, 10 ga.
Shear, 98" Stoll, 16 gauge.
Shear, squaring, power, 20 ga.
Tooth rounder, 12" Rochester.

Our warehouse is full of bargains. What have you for sale?

SECOND-HAND MACHINERY

FOR SALE BY

Niles-Bement-Pond Company, 111 Broadway, New York

Located at our various factories

NOTE—All Motor-Driven Machines are for 220 volts, direct current.

PLANERS.

- | | |
|---------------------------------------|---|
| 24"x24"x 6' Powell, 1 head. | 42"x42"x12' Niles, 4 heads. |
| 24"x24"x 6' Whitcomb, 1 head. | 42"x42"x14' Pond, 3 heads. |
| 24"x24"x 8' Whitcomb, 1 head. | 42"x42"x26' Pond, 4 heads, rev. mtr. |
| 24"x24"x10' Whitcomb, 1 head. | 48"x48"x16' Pond, 4 heads, rev. mtr. |
| 26"x26"x 6' Gray, 1 head. | 50"x36"x22' Pond, 4 heads, rev. mtr. |
| 30"x30"x 6' Pond, 2 heads. | 52"x36"x10' Pond, 4 heads, rev. mtr. |
| 30"x30"x 8' Pond, 2 hds., rev. motor. | 54"x34"x22' Pond, 4 heads, rev. mtr. |
| 30"x30"x12' Pond, 2 hds., rev. motor. | 60"x60"x20' Niles, 3 heads. |
| 32"x32"x10' Niles, 2 heads. | 60"x60"x24' Niles, 4 heads. |
| 36"x36"x10' Niles, 4 heads. | 72"x72"x32' Ridgway, 4 heads. |
| 36"x36"x12' Pond, 4 heads, rev. mtr. | 120"x120"x36' Betts, 4 heads, motor drive thru belts. |
| 36"x36"x16' Pond, 4 heads, rev. mtr. | |
| 38"x38"x10' Niles, 2 heads. | |

DRILLING MACHINES.

- | | |
|--------------------------------|--|
| 34' Morris radial. | 6' Niles univ. radial, motor driven. |
| 5' Niles radial, motor driven. | 6' Niles semi-univ. radial, mtr. driv. |
| 6' Pond radial, motor driven. | 9' Pond radial, motor driven. |

LATHES

- | | |
|--------------------------------------|--------------------------------------|
| 16"x 8' Morris. | 30"x23' Pond, qk. ch., motor drive. |
| 17"x 8' LeBlond, motor drive. | 36"x12' Pond, triple grd., motor dr. |
| 18"x 8' Morris. | 36"x17' Pond, triple grd., motor dr. |
| 18"x10' Morris. | 42" Pond forge lathe, motor driven. |
| 21"x 8' LeBlond, motor drive. | 60"x44' Pond, motor drive. |
| 22"x10' & 22"x12' Morris. | 72"x21' Pond, motor drive. |
| 25"x10' LeBlond, motor drive. | 8"x44" Pratt & W. turret lathe. |
| 26"x10' Pond, motor drive. | 1"x15" Pratt & W. turret lathe. |
| 26"x38' Pond, qk. ch., dbl. bk. grd. | 2"x28" Pratt & W. turret lathe. |
| 30"x14' Pond, quick change. | 3"x36" Pratt & W. turret lathe. |
| 30"x25' Niles lathe. | 28" Pond rigid turret lathe. |

SHAPERS AND SLOTTERS.

- | | |
|-----------------------------|-----------------------------------|
| 16" Stockbridge shaper. | 15" Bement slotter, motor driven. |
| 26" Worcester crank shaper. | 18" Bement slotter, motor driven. |

MILLING MACHINES.

- | | |
|---|-----------------------------------|
| No. 10 Pratt & W. hand miller. | Size C Becker vertical. |
| No. 3 Brown & Sharpe plain, motor driven. | No. 3 Cincinnati vertical miller. |
| No. 3 Cincinnati universal. | No. 5 Brown & Sharpe vertical. |
| No. 5 Brown & Sharpe plain. | No. 13 Pratt & W. Lincoln miller. |
| 45"x48"x14' Bement slab miller, motor driven. | 6"x48" Pratt & W. thread miller. |
| | 6"x80" Pratt & W. thread miller. |
| | 6"x132" Pratt & W. thread miller. |

GEAR CUTTERS.

- | | |
|----------------------------|--|
| No. 3 Newark gear cutter | No. 4 Newark spur. |
| No. 3 Brown & Sharpe spur. | 5-A Lees-Bradner gear hobbing machine. |
| No. 4 Brown & Sharpe spur. | |

VERTICAL BORING MACHINES.

- | | |
|--|---------------------------------------|
| 36"-44" Niles side hd. mill, motor dr. | 10' Niles boring & turn'g mill, m. d. |
|--|---------------------------------------|

HORIZONTAL BORING MACHINES.

- | | |
|--|--|
| 40" Morris, horizontal boring and drilling machine, 2" bar. | |
| 60" Bement horizontal boring and drilling machine, 2" bar. | |
| 66" Bement horizontal boring and drilling machine, 4" bar. | |
| 80" Bement horizontal boring and drilling machine, 5" bar, motor driven. | |
| 60" Bement duplex control boring machine, 4" bar, motor driven. | |
| Pond floor drill, 3" bar. | |
| Niles boring, drilling and milling machine, 5" bar, motor driven. | |

MISCELLANEOUS.

- | | |
|-------------------------------------|--|
| Centering machine, 4" P. & W. | Punch, No. 3 L. & A. horiz., 1" in 1". |
| Grinder, 4"x30" P. & W. | Punch, No. 2 L. & A. 48" thr., 1" in 1". |
| Pipe machine, 2" Cox, motor driven. | No. D L. & A. dble. 36" thr., 3" in 1". |

CRANES AND HOISTS.

- | | |
|---|-------------------------------|
| Electric Traveling Cranes, 220 Volts, Direct Current. | |
| 50-ton crane, 60' span. | 3-ton crane, 20' 2 1/2" span. |

SECOND-HAND MACHINERY

FOR SALE BY

Foster Machinery Company,

10203 Quincy Ave., Cleveland, O.

Angle shear, No. 2 Cleveland, 4x4x4" angle.
Bolt cutter, 1 1/2" Acme.
Grinder, Greenerd, tool & cutter.
Grinder stand, Western No. 4, two 14" wheels.
Lathe, 12"x4" Wells, speed.
Lathe, 18"x8" Lodge & Shipley.
Miller, No. 00 Brown & S., hand.

Miller, No. 00 Owen, Fox type.
Miller, No. 2 Cincinnati universal.
Planer, 36" x 36" x 10' Whitcomb, 2 heads.
Riveter, Hanna, 24" throat, 15" gap, 1/2" rivet.
Rivet hammers, No. 2-A, No. 4-A and No. 5-A High Speed.
Shaper, 20" Gould & Eberhardt.

SQUARING SHEARS.

Geo. A. Ohl, 8', 3/16" capacity, power.

Niagara No. 172, 6'; 18 ga., power.
No. 210-A Pexto, power.

FOR SALE BY

B. L. Saltzman,

524-526 W. Van Buren St., Chicago, Ill.

LATHES.

18"x10' American.
26"x12' Walcott.

Garvin screw machine.
Pratt & Whitney turret lathe, 8.

MILLING MACHINES.

Kemp Smith No. 1 miller.
Hendey-Lincoln miller.

Whitney hand miller.

TINNERS' TOOLS.

Niagara No. 136 punch & shear.
Niagara No. 536 gap shear.
10' 16-gauge steel brake.

Rollers.
Circular and slitting shears.
30, 36 & 42"-10' foot pwr, sq. shears.

MISCELLANEOUS.

Band saw, 32" & 36", metal.
Grinder, Heald, mag'tic ck. grind'rs.
Motors, Dayton 1/2 h. p., 44.
Motors, a. c. & d. c., punch presses, pulleys, leather belting, shafting and hangers.

Planer, 24"x24"x6' Whitcomb.
Shapers, 16" Steptoe.
Shaper, 24" Rockford.
Drill presses, grinders, hack saws, shafting and hangers.

FOR SALE BY

Brown Machinery Co.,

2323 N. 9th St., St. Louis, Mo.

Drill, Baush No. 3 multiple, cap. 30 spdls., rectangular hd. 20x40".	Price \$1500.
Drills, radial, 3' American and Mueller; each	750.
Drill, radial, horizontal, No. 1 Barnes, d. c.	350.
Grinder, cylinder, No. 60 Heald	850.
Grinder, No. 14 Gardner, b. b., disk, dry, 20" disks, good cond.	Price 400.
Grinder, No. 6 Besly two-spindle disk, 20" disks.	Price 350.
Grinders, three No. 2 Gardner single spindle, double disk, with universal tables; good condition.	Price, each 175.
Grinder, No. 2 American surface	375.
Grinder, Bath universal	750.
Grinder, LaSalle automatic surface, good condition.	Price 275.
Grinder, No. 12 B. & S. 8x36" pl., for wet grinding; good condition.	Price 450.
Grinder, No. 1 Brown & Sharpe universal, 10x24; good condition.	Price 375.
Grinder, No. 14 Besly single spindle ring wheel.	Price 400.
Hammer, size A United, motor driven.	
Lathes, 16"x6" Monarch, heavy duty, each	375.
Lathes, 17"x6" Cincinnati, each	275.
Miller, No. 1B Fox, hand & pwr. fd., 18x6x14; new, never used.	Price 400.
Polishers and buffers, drop head, New Britain, each	50.
Punch & stake riveter, No. 3 Hilles & Jones 60" throat, rapid action; cap. full depth throat 1/2" in 7/16"; 16,000 lbs.; two stakes.	Price 1500.
Shear, Niagara 8', 18 ga., foot power, square, splendid condition.	Price 275.
Shear, Marshalltown No. 134 rotary splitting, cap. 1/2" plate; 4' throat; arranged for motor drive. Like new.	Price 750.

Many other bargains. Write for List No. 124.

SECOND-HAND MACHINERY

FOR SALE BY

Marr-Galbreath Machinery Co.,

58 Water St., Pittsburgh, Pa.

Angle & bar bender, No. 9 Buffalo.
 Bender & straightener, No. 4 H. & J.
 Blowers, No. 3 Stur., pressure.
 Blowers, pos. pres., 2, 2½ & 5" outlet.
 Bolt cutter, single 2½" head, Acme.
 Bolt cutter, double 2" head, Landis.
 Bolt cutter, 1½" Acme, triple head.
 Boring mills, Rockford, 2" & 3" bar.
 Boring mill, No. 21 Lucas hor., 2½" bar.
 Boring mill, 36" Bullard, side head.
 Boring mill, vertical 72" Betts.
 Boring mills, 51" Niles; 10"-16" Niles.
 Boring mill, vertical 84", 2 heads,
 220 v., d. c. motor, (near new).
 Boring mill, 12" Pond, 2 heads.
 Brake or press, 10" Robinson, toggle.
 Bulldozer, No. 8 Ajax, new.
 Compressor, Chicago, st., 176 cu. ft.
 Comp'r, 2500 cu. ft. L. D. G., a. c. mtr.
 Compressors, Curtis 2½x3" & 4½x4½".
 Compressor, 7" x6", Ing. Rand.
 Compressor, steam, 864 cu. ft., Bury.
 Compressor, 1300, 888, 599 cu. ft., m. d.
 Drill, radial, 5" Prentice, g. b., st. d.
 Drill, radial, 6" Baush, m. d.
 Drill, radial, 4" American, gear box.
 Drill, 8" Baush.
 Drills, 36" Hoefler; 24" Aurora, s. h.
 Drill, 13" Washburn sensitive.
 Drill, 28" Barnes, sliding hd., b. g.
 Drill, 22" Aurora upright.
 Drills, No. 2 Colburn, mfg. type, (4).
 Exhausters, No. 8 Buffalo.
 Forging machine, 4" Acme.
 Forging machines, 1½, 2, 2½ & 3".
 Gear cutter, No. 11 universal Dwight.
 Generator, 100 k. w., 240 v., d. c., con-
 nected to horiz. steam engine.
 Generator, 85 k. w., 240 v., d. c., con-
 nected to horiz. steam engine.
 Grinder, No. 60 Heald internal.
 Grinder, Diamond dbl. end, 14" wh.
 Grinder, disc, No. 10 Besly, 18" wh.
 Hack saw, 6x6 Peerless.
 Hack saw, No. 5 Marlow, cap. 6x6".
 Hack saw, No. 7-KC Atkins, 8x8.
 Hammer, 100 lb., 600 lb. sgl. fr., steam.
 Hammers, 80, 100 & 125 lb. Bradley.
 Hammers, st. drop, 2000 lb. Bement.
 Hammers, st. drop, 3000 lb. Ch'b'g.
 Hammers, sgl. fr., 350, 800, 1100, 1500.
 Hot saw & burring machine, Acme.
 Keyseater, No. 1 Davis, cap. 1" key.
 Lathe, 42"x32" Am., grd. hd., m. d.
 Lathe, 38"x18" American, g. h. t. a.
 Lathe, 32"x14", Draper, 2½" h. s.
 Lathe, 24"x10" L. & S., q. c. g.
 Lathe, 18"x10" Porter, s. b. g., c. r.
 Lathe, 18"x8" Hendey, pl. change.
 Lathe, 18"x8" Am., q. c. g., tap. att.
 Lathe, 16"x8" Bradford, pl. change.
 Lathe, 14"x6" Monarch, q. c. g., t. a.
 Lathe, speed, 11"x4" Prentiss, t-rest.
 Miller, bench, No. 1 Burke, hand.

Miller, No. 3½ Fox, hand. 24"x6"x14½".
 Miller, No. 0½ Cin. pl., 18"x6"x15".
 Miller, No. 3 Le Blond, pl. ind. hd.
 Miller, No. 2 Kempsmith universal.
 Miller, vertical, No. C Becker.
 Miller, vertical, No. 4, Becker.
 Miller, Hendey Lincoln No. 2½.
 Miller, Knight duplex, tbl. 8½"x32".
 Miller, No. 0 Kempsmith universal.
 Miller, No. 3 Cinc'i. plain 32"x9x20.
 Miller, vertical No. 0 & 1 Bickett.
 Motor, ½ h. p., 230 volts, d. c.
 Motors, 10 h. p., 110 v., d. c.
 Nut tapper, ½" Acme 6-sp. semi-auto.
 Oil separator, No. 2 Roper, belt.
 Pipe machines, 12, 10, 4, 2" Jarecki.
 Planer, 120"x120"x36", 4 heads, m. d.
 Planer, 96"x84"x42", 5 heads, m. d.
 Planer, 74"x54"x24" Pond, 4 hds. m. d.
 Planer, o. s., 72"x72"x18", 3 hds., m. d.
 Planer, 60x60"x12" Pond, 3 hds., m. d.
 Planer, open side 42"x42"x16", 3 hds.
 Planer, Powell, 42"x42"x16", 4 hds.
 Planer, 42"x42"x12" Betts, 1 head.
 Planer, 42"x36"x20" Cin'ti, 4 heads.
 Planer, 28"x26"x8" Niles, 1 head.
 Planer, 24"x24"x5" New H., 1 hd.
 Press, No. 10 Bliss o. b. i., bench.
 Press, No. 62 Bliss plain, 8" stroke.
 Press, No. 56 Toledo, pl. trim., 3" str.
 Press, No. 11 Perkins, pl. trim., 4" str.
 Press, No. 82 Consolidated horning.
 Press, Bliss No. 20, o. b. i. plain.
 Press, No. 16 horning, swing table.
 Punch & shear, H. & J., 72" tht.,
 cap. 1½"x1½", motor drive.
 Punch & s., No. 2 I. & A., 30" tht., a. j.
 Pyrometer, 32 to 3000 deg. F.
 Riveter, ½" Shuster, style A.
 Riveter, Allen, jaw, 36x20x1½" rivets.
 Riveter, 20x18x1" rivets pinch bug.
 Rivet hammers, 4-A, 5-A, high spd.
 Rolls, bending, 40"x1", m. d.
 Saw, No. 11½ Higley, cap. 4" blade.
 Screw mch. No. 2 B. & S., automatic.
 Shaper, 24" Gould & Fieberhardt back
 geared crank; old style.
 Shaper, 15" Kelly, sgl. grd. crank.
 Shapers, 14", 24" Steptoe, crank.
 Shears, Quickwork No. 6, m. d.
 Shear, splitting, No. 26 Beloit, cap.
 ½", arr. for motor.
 Shear, rotary, ½" Lennox, 8' gap.
 Slotters, 16"x18" Bement-Miles.
 Straightener, No. 2 Kane & Roach.
 Testing mchs., 100,000, 200,000 lbs.
 Turret lathes, Nos. 1 & 2 W. & S.
 Turret lathe, No. 4 Wood Tilted.
 Turret lathe, No. 1 Bardons & O.
 Turret lathe, Libby 21", motor drive.
 Valve mche., 28" Pottstown, 3-w., m. d.
 Valve tapper, 4" Pottstown, 3-w., m. d.
 Valve tapper, 4" Pottstown, 3-spdl.
 We Buy, Sell and Exchange.

SECOND-HAND MACHINERY

FOR SALE BY

Botwinik Brothers, Inc., - **67 Water St., New Haven, Conn.**

SHAPERS.

10-Hendey 15" friction shapers, complete with vises, countershafts, wrenches, etc., used but in first-class working condition throughout, having been overhauled. Price \$195.00 each, f. o. b. cars, New Haven, Conn. Wire, write or phone.

FOR SALE BY

McMullen Machinery Company, - **Grand Rapids, Mich.**

Automatic, 8" Cleveland.
Automatics, No. 00 B. & S.
Band saw, 10" Napier, metal.
Cut-off saw, No. 4 N. & B.
Drill, 31" Barnes, sliding head.
Grinder, Cleveland, profile.
Grinder, No. 6-A Bryant.
Lathe, 9'x21½" Sundstrand, mfg.
Lathe, 2½x26 Greenlee, flat turret.

Miller, No. 2-H Becker vertical.
Pipe mch., 6" Merrill No. 6½.
Press, Chicago scrap baler.
Press, No. 3 Manville, d. a.
Presses, No. 6 Manville, pillar, (3).
Presses, No. 6B Manville, pillar, (2).
Shear, No. 14 Pettingell, rotary.
Shear, No. 2 W. F. Co. 36" gang.
Welders, No. 10-A Thomson vert. (7)

Ask for Complete List.

FOR SALE BY

Fitzsimmons & Cole Machinery Company

1208 House Building,

Pittsburgh, Pa.

Air compressor, Ingersoll, 6x6", b. d.
Bolt cutters, 1½" to 4" Landis.
Boring mill, 51" Bullard, belt drive.
Drill, radial, 5' Foxdick, mtr. d. new.
Gear cutter, No. 13 Brown & Sharpe.
Gear planer, 24" Gleason bevel.
Grinder, 12"x52" Landis, plain.
Grinder, 16"x48", Landis crankshaft.
Grinder, 16"x68", Landis crankshaft.
Hammer, 200 lb, Bradley upright helve.
Hammers, 2-B, 3-B, 4-B & 4-N Nazel.
Lathe, 18"x 8' LeBlond, q. c. g., b. d.
Lathe, 24"x12' Schumacher & Boye, q. c. g.
Lathe, 36"x16" American, q. c. g., m. d.
Lathe, 52"x34" Pittsburgh, 2 car., m. d.
Lathe, turret, No. 4 W. & S. plain.
Lathe, turret, 24" Gisholt, mtr. dr.
Lathe, turret, 5"x30" Bardons & O.
Miller, No. 3-A Garvin plain.
Miller, No. 3-B Milwaukee, plain.
Miller, Ingersoll slab 36"x36"x18".
Pipe mch., No. 1-B Williams, ½ to 2"
Planer, 36"x36"x24" Pond, 4 hds, b. d.
Planer, 48"x48"x14" Gray, 3 hds., b. d.
Planer, 72"x72"x16" Betts, 4 heads.
Planer, 120"x90"x27" Detrick & H.
Planer, openside, 43"x42"x16" Clev'd
Planer, openside, 48"x48"x20" Clev'd
Press, No. 20 Bliss, o. b. i., 3" stroke.
Press, No. 37½ Bliss, straight sided, 3" stroke.
Press, No. 93-A Toledo, dbl. crank, 8" stroke.
Press, baling hyd. No. 12-P Logemann
Punch & sh., No. 2 Cinti, 1" thru 1".

Punch & shear, No. "A" L. & A., 2" thru 1½".
Punch & s., Pels, type RBLUEF-16.
Punch & s., Cleveland, 1½" thru 1".
Punch & shear, No. 3½ Hilles & Jones, 1½" thru 1".
Punch & shear, No. 5½ Hilles & Jones, 1½" thru 1½".
Punch hor., type "T" Cleveland, 1" thru 1".
Punch, multiple, No. 5 Hilles & J., 120" between housings.
Riveter, Grant, bench type, ¾" cap.
Riveter, Hanna, 70-ton, 18" reach.
Riveter, Hanna 30-ton, 75" reach.
Riveter, Hanna 70-ton, 102" reach.
Rolls, angle bending, 4"x4"x½".
Rolls, plate bending, No. 2 H. & J. 10"x8".
Sand blast, MacLeod, 36"x36".
Saw, No. 3 Ryerson high spd. friction
Shaper, 20" Stockbridge, back geared, m. d.
Shaper, 24" G. & E., bk. grd., b. d.
Shaper, 24" Ohio, bk. grd., b. d.
Shear, alligator, Carlin, cap. 14" sq.
Shear, alligator, No. 3 Canton, 2" square, m. d.
Shear, angle, L. & A., cap. 8"x8"x1½".
Shear, guil., No. 3 H. & J., cap. 24" sq.
Shear, plate, 120"x½" Garrison, new.
Shear, rotary, Quickwork, 60" thr.
Straightening roll, 9-roll, rolls 3x42".
Testing machine, 100,000 lbs. Riehle.
Upsetter, 2½" ajax, steel bed, b. d.
Upsetter, 4" Acme, steel bed, m. d.
Welder, No. 20-A Thompson, butt.

SECOND-HAND MACHINERY

FOR SALE BY

Chas. Molitor Machinery Co., 118-124 S. Clinton St., Chicago, Ill.

LATHES.

32"x19' New Haven, taper, older style.
28"x10' Niles, q. c. g.
24"x12' Walcott, q. c. g.
24"x10' Lodge & Shipley, grd. hd.
24" Hendey, taper, collet.
20"x 8' Monarch, q. c. g., dbl. g.
18"x 8' Morris, q. c. g., dbl. g., (2).
18"x 8' Walcott, q. c. g., d. b. g.
18"x 8' Sidney, q. c. g., d. b. g., (2).
16"x10' & 16"x6' Pratt & Whitney, taper, draw, collets, relieving att.

16"x 6' Bradford, q. c. g.
16"x 8' Pratt & Whitney, q. c. g., taper, relieving attachment.
16"x 6' Walcott, q. c. g.
14"x 6' Hendey, collet attach.
14"x 6' Sidney, q. c. g., taper att.
14"x 6' Sebastian, q. c. g., taper, geared head, motor attachment.
13"x11' Sebastian.
12"x 5' Pratt-W., taper, draw collets.
Cataract, Pratt & Whitney.
Sundstrand and Porter-Cable, (12).

MILLERS.

24" Bullard.
No. 2 Kempsmith universal, (2).
No. 3 Kempsmith universal.
No. 1½-B Kearney & Trecker univ., vertical and rack cutting attach.
No. 1 Kempsmith plain.
No. 1 Brown & Sharpe plain.
National Transit Co. plain.
No. 3 Becker vertical (3).

No. 3H Becker vertical.
No. 4 Cincinnati, single pulley.
No. 5 Ingersoll horizontal and vertical.
Gooley & Edlund, production.
Pratt & Whitney thread miller.
2½" Twin spline miller, P. & W.
Bristol, Whitney, U. S. hand.
National Acme auto. screw slotter.

RADIALS AND DRILL PRESSES.

30" Drees, Mueller.
24", 26" Aurora, Cincinnati, etc.
No. 3 Fox multiple, 16-spindle, ½" capacity.

2, 3 spdl. 24" Aveys, 1" cap. (3).
4-spindle Allen, ½".
1, 2, 3, 6 sp. Leland-Gifford, ½" cap.
Large variety 14", 16", 20" & 24".

GRINDERS.

Nos. 2 & 3 Brown & Sharpe univ.
Nos. 1 and 2 Cincinnati universal.
No. 2 Norton univ., magn. chuck.
10"x36" Norton cylindrical.
No. 1 Brown & Sharpe cylindrical.
O. C. Walker surface, magn. chuck.

4"x20" Norton cylindrical.
No. 11 Brown & Sharpe.
18", 26", 40" disc, Gardner, Besly.
No. 23 Brown & Sharpe cylinder.
No. 65 Heald cylinder.
Heald internal, 2 sizes.

SCREW MACHINES AND TURRET LATHES.

Jones & Lamson dbl., sgl. spindle.
No. 2 Brown & Sharpe semi-auto.
No. 6 Foster, power long. & cross feed.
No. 6 Warner & Swasey.

Nos. 0, 1, 2, 3 Foster, Bardons & Oliver, Garvin, W. S., P. & W.
1" & 1½" cap. Acme, b. g., frict. h.
½", ¾", 1", 2" Cleveland auto.
¾" capacity Acme universal.

PUNCH PRESSES AND SHEARS.

No. 6 Bliss, Stiles pattern.
No. 3 Black & Johnson (3).
No. 65 Consolidated, 5" stroke.
No. 3 Niagara inclinable.
No. 4 American, solid back.
No. 5 Swaine, solid back.
No. 5 Zeh & Hahneman inclinable.

No. 64 Consolidated double crank, 42" between housings, 4" stroke.
10" Niagara square shears, 20 ga.
52" Niagara, 16 gauge.
36" Niagara, 16 ga., power.
30" Circle shear, ½" cap., power.

GEAR CUTTERS.

26" No. 3 Brown & Sharpe auto.
No. 13 Brown & S., bevel & spur.
Nos. 1 & 1½ Standard auto., (8).

Waltham automatic, (4).
No. 10 Bilton gear hobbors, (4).

MISCELLANEOUS.

Beaders, power.
Bolt cutter, ½" Geometric.
Bolt cutter, 1½" Acme, double head.
Bolt cutter, 3" National Acme.
Corrugating machine, steel, 7"x36".
Keyseater, No. 2 Davis.
Reducing rollers, 11"x22" Toledo, weight 20,000 lbs.
Drill & lathe chucks, Stromberg periodograph, time clocks, time stamps, etc.
1000 different sizes emery wheels.

Reducing or straightening rolls, 6"x36".
Rivet spinners, Grant.
Screw presses, 24" and 30".
Shears, circle and slitting.
Shears, 60" serpentine & splitt'g, (7).
Straightening rolls, 10"x36".
Tapping machines, all sizes.

SECOND-HAND MACHINERY

FOR SALE BY

The O'Brien Machinery Co.,

Drill, 32" Aurora, motor driven, tapping attachment.
 Drill press, 24-spd., multiple Natco, motor driven.
 Drill press, D-1 Colburn heavy duty.
 Grinders, foundry, Norton heavy duty, (2).
 Hammer, 100 lb. Massillon, steam.
 Lathe, 22"x11" Lehmann, geared head, taper attachment.
 Lathe, 22"x12" Mueller.
 Lathe, 24"x12" Schumacher & Boye.
 Lathe, 36"x19" L. & S., taper attach.
 Lathes, extension bed gap, 25"-45"x14" Harrington, motor driven.
 Millers, Gould & Eberhardt continuous, (2).
 Planer, 30"x30"x10" Whitcomb. 1 hd.
 Pipe machines, 2", 4", 6", 8" & 12" Oster, Cox, Williams, Eaton-Cole & Burnham and Jarecki makes, belt or motor driven, comp. stock.

113 N. Third St., Philadelphia, Pa.

Planer, 36"x36"x12" Woodward & Powell, motor driven, 3 heads.
 Planer, 36"x36"x24", Bement, 4 hds.
 Press, No. 54 Toledo gr. str. side.
 Presses, Nos. 18, 19 and 20 Bliss.
 Punch and shear, No. 3 Hilles & J., dbl. end, motor dr.; punch end, 42" thrt., cap. 1 1/2" thru 1"; shearing end, 36" thrt., cap. 1" plate, 2 1/2" round, 7"x1 1/4" flat, 5"x5"x1" angle.
 Punch and shear, Pels combination; punching cap. 1" thick; shearing, 2" rd., 2 1/2" squares, 6x6x1" angles.
 Radial drill, 5' Pond, motor driven.
 Radial drill, 5' Mueller.
 Shapers, 12", 14", 16", 21" and 24" stroke, assorted makes.
 Shaper, 3 Bement-Miles massive heavy duty, traveling head.
 Turret lathe, flat, 3"x36" Jones & L.
 Turret lathe, No. 6 1/2 Bardons & Oliver, 2 1/2" w. f. cap, cabinet base.

FOR SALE BY

Wm. C. Johnson & Sons Machinery Co.,

1211-1223 N. 12th St.,

St. Louis, Mo.

30"x24" Diamond face grinder.
 12"x48" Landis plain.
 10"x36" Thompson universal.
 Greenfield universal.

GRINDERS.

5"x18" Ott grinder.
 No. 2 LaSalle surface grinder.
 Yankee twist drill.

24"x24"x6" Gleason.
 32"x30"x7" Whitcomb.

PLANERS.

36"x36"x10" Flather, 2 heads.

Smith & Mills, all sizes.

SHAPERS.

16" Steptoe.

14"-24"x5 1/2" Barnes, gap.
 14"x 6" Monarch, q. c.
 14"x 6" Sidney, q. c.
 20"x10" Rahn & Larmon.
 24"x12" Advance.

LATHES.

26"x13" Putnam.
 26"x14" Rahn & Larmon.
 30"x15" American, q. c.
 33"x20" Draper, triple geared.

DRILLING MACHINES.

3' arm Mueller, radial, tapping att.
 3' arm Prentice radial.
 3 1/2' Canedy-Otto post radial.

24" Aurora, sliding head.
 38" Bickford, sliding head.
 Barnes drills, all sizes.

MILLING MACHINES.

No. 12 Kemp Smith.
 No. 4 Cincinnati plain, single pulley.
 No. 1 1/2 Brown & Sharpe.
 No. 2 Brown & Sharpe plain.
 No. 33 Kemp Smith.

No. 1 1/2 Knight vertical.
 No. 2 Knight vertical.
 Nos. 0 and 3 Burke bench.
 Whitney hand miller.

MISCELLANEOUS.

Boring machine, horizontal, No. 2 Pawling & Harnischfeger.
 Boring machine, No. 1 Buss & horiz.
 Broacher, No. 1 LaPointe.
 Bulldozer, 75-ton Lorie hydraulic.
 Engines, Corliss, 75 to 200 h. p.
 Magnetic pulley, 24"x28".
 Pipe machine, 16" Bignall & Keeler.
 Punch, No. 5 Long & Allst., 5" thrt.

Punch and shear, No. 2 Cincinnati, 12" throat.
 Punch, No. 7 Long & Allstatter, 4" throat.
 Riveter, model A Schuster.
 Screw machine, No. 6 Woods.
 Tilted turret lathes, Nos. 2, 3 and 4 Wood.
 Wheel press, 84", 200 ton.

SECOND-HAND MACHINERY

FOR SALE BY

A. F. Strafer, • • • **30 Church St., New York City**

BORING MILLS, VERTICAL AND HORIZONTAL.

12" Betts, geared feed, belt drive.	51" & 42" Bullard, s. p. drive.
10"-16" Betts extension type, b. d.	Horizontal Bement-Miles No. 8, 6' spindle.
65" Gisholt rapid traverse, b. d.	Horizontal Betts, 4" bar, knee type.
48" Colburn, 2-hd., grd. feed, b. d.	Horizontal No. 35 Rochester, 3" bar, floor type.
36" Bullard, side head.	Horizontal No. 3 Univ., 3" bar, s.p.d.
30" King, single turret head.	
54" Bullard, rapid traverse.	

DRILLS, UPRIGHT AND RADIAL.

6" Mueller plain, d. c. motor drive.	3 1/2" Cincinnati Bickford, speed box.
7'-6" & 5' Baush, belt drive.	4" Dreses, univ., s. p. d.
6" Cincinnati Bickford, full univ.	310 Baker, 2 1/2" capacity, s. p. d.
D-3 Colburn heavy duty, s. p. d.	32" Snider upright, belt drive.

GRINDERS

No. 16 Blanchard, a. c. motor drive.	3"x18" Norton plain.
No. 60 Heald cylinder, low price.	No. 4 Detroit heavy duty centering.
10"x36" Norton plain.	16"x96" Brown & Sharpe, self-cont.
10"x24" Landis plain, self contained.	No. 11 Brown & Sharpe, 6"x32".

LATHES

50"x36" Bement-Miles, t. g.	60"x16" New Haven, t. g.
50"x16" Fifield, belt drive.	30"x16" Lodge & Shipley.
50"x30" Pittsburgh, h. d., q. c.	24"x10" R. K. LeBlond, taper att.
44"x21" Niles-Bement-Pond, t. g.	20"-38"x16" Rahn Larmon, slide gap

TURRET LATHES.

3 1/2"x36" Acme, flat, modern, geared head, chuck equipment.	3 1/2"x36" Jones & Lamson, bar equipment, high ser.
18" Libby, complete.	2 1/2"x26" Greenlee, like new, cheap.
28" Gisholt, fine condition.	No. 6 Brown & Sharpe.

MILLING MACHINES.

No. 4 Cincinnati plain, cone type.	No. 3 Brown & Sharpe plain, cone.
No. 4 Brown & Sharpe pl., conetype.	25" Cincinnati semi-automatic.
No. 3 Kempsmith univ., cone.	No. 3 Cincinnati vert., high power.

PLANERS.

14'x27'-4 h., belt drive (stone).	48"x48"x14' Powell, 4 heads.
12'x25'-4 h., belt drive (stone).	50"x50"x20" Wm. Sellers, 3 heads.
54"x16" Wm. Sellers, 4 heads, b. d.	24"x24"x6" Gray, 1 head.

PUNCHES AND SHEARS.

No. 6 Hilles & Jones, 42" throat.	Pells triple combination, cap. 1 1/2".
No. 3 Hilles & Jones, double, 48" throat, motor drive.	Quickwork 1/2" cap. slitting & beading.
No. 4A Quickwork rotary, m. d.	60" gate shear, Long & Allstatter, 1/2" capacity.
No. 10 Quickwork, 60" t., cap. 14 ga.	Lennox rotary, 44" throat, 1/2" cap.

MISCELLANEOUS.

Air hammers and drills.	Hammer, 600 lb. Erie, forging.
Automatics, Nos. 52 & 53 Nat-Acme.	Hammer, Nazel No. 4-I, motor dr.
Bending rolls, 1/2"x20" Niles-B.-P.	Jack, Watson-Stilman, 15-ton.
Bending rolls, 1/2"x7" Wm. Sellers.	Keyseater, No. 3A Mitts & Merrill.
Bending rolls, 7/16"x12" drop end.	Running balance machine, Norton.
Bending rolls, 1/2"x10" 6" Southworth.	Saw, Ryerson friction No. 3.
Blower, No. 3 Root, 20 h.p., a.c., mtr.	Shafting, 2 1/2"/16" Hyatt hangers, 16" drop.
Broaching machine, Nos. 2 & 3 LaPointe.	Shaper, 16" Milwaukee.
Crane, 50-ton, 86' spar, P. & H., d.c.	Shaper, 24" Gould & Eberhardt.
Drill chucks, 1" capacity, new.	Slotter, 20" Betts.
Fire pump, 1000 gal. Knowles, stm.	Slotter, 24" Bement-Miles.
Gear cutter, G. E. 24"x8".	Tapping attach., Errington, 1" cap.
Gear cutter, 60" Brown & Sharpe.	Upsetter, 1 1/2" Acme, steel bed.
Gear hobber, 24"-32 Gould & Eber.	Welding set, 24 k. w., 40 h. p., 3 ph., 60 c.; 440 volt.
Hammer 3000 lb. Bell, double frame.	

SECOND-HAND MACHINERY

FOR SALE BY

Mid-West Machine Tool & Supply Co.,

Davenport, Iowa

With a good-as-new, money-back guarantee—Partial list.

Automatic, 14" Cleveland, model A.
Automatic, 24" x 34" Cleve., model A.
Boring mill, 24" Bullard.
Boring mill, 36" Gisholt.
Drill, 36" Colburn heavy duty.
Drill, No. 22 Natco.
Drills, 1, 2 & 3 spd. Leland-Gifford.
Engraving machine, Gorton.

Grinders, No. 10 B. & S. pl., s. p. d.
Grinder, 10" x 36" Norton plain.
Millers, No. 2 Hendey plain.
Miller, No. 3 Cincinnati plain.
Punch, s. e., F24 Badger, 14" thru 1".
Radial, 4' American sensitive.
Thread miller, new Taft Pierce.
Turret lathe, No. 6 Warney & S.

FOR SALE BY

Tubor, Velick & Co., Inc., - - 628-630 W. Lake St., Chicago, Ill.
Telephones: Monroe 4199-6813. No Branches

PUNCH PRESSES.

No. 3 Walsh.
No. 4 American Can.
No. 7 Beatty, cap. 14" in 1".
Bliss Nos. 19 and 194.
Consolidated No. 14.

No. 15 Torris Wold.
Perkins punch presses, 4" str. (20).
Nos. 13 & 15 single end punches.
Long & Allstatter horn punch, capacity 14x1.

DRILL PRESSES.

14" Excelsior.
20" b. g., p. f., new, \$130.
20" drill presses (40), each \$40.
26" Weigel.
30" Reed-Prentice.

Demco high-speed drills.
Bench type drills.
3' American radial.
34' Hilbert radial.
34' Canedy-Otto radial.

MILLING MACHINES.

No. 2 LeBlond.
No. 2 Cincinnati universal.

No. 3 Kempsmith.
A number of hand millers.

LATHES.

11" x 5' Sterling.
16" x 6' Sidney, 2 chucks & collets.
16" x 6' Sidney, q. c., (2).
16" x 6' Monarch q. c.
16" x 68' Canedy-Otto.
17" x 8' Sidney, q. c.

20" x 8' Lodge & Shipley, geared head, s. p. drive.
24" x 10' Canadian, q. c., d. b. g., (3).
25" x 10' Sidney.
26" x 12' Prentice.

PLANERS.

24" x 24" x 6' Pond.
24" x 24" x 8' Putnam.

30" x 30" x 8' Fitchburg.
36" x 36" x 7' Flather, 2 heads.

SHAPERS.

24" Rockford.

24" Kelly.

SCREW MACHINES.

No. 2 Smith, hand.

No. 2 & No. 3 Foster.

GRINDERS.

Bath universal, with magnetic chk.
No. 2 Manhattan surface.
Gardner No. 6 disc grinder.

No. 14 Besly, disc.
Emery grinders, #2 and up.

WOOD-WORKING MACHINERY.

Band saws, 36" Famous, new, (10).
Boring mills, Andrew, (3).
Glue jointer, Falls.
Jointers, 4" D. C. Wallace.
Planer, 30" Berlin.

Saw table and jointer combined, portable.
Shapers, double spindle, Whitney and Fay.
Swing saws, Porter, (4).

MISCELLANEOUS.

Buffers, U. S. and Westinghouse, 5 h. p., b. b.
Cold saw, No. 20 Lea-Simplex.
Gear cutter, Barber-C. No. 12.
Hack saws.
Keyseaters, Davis.
Lockers, steel, single and double.
Motors, a. c. and d. c.

Paper cutter, 57" Oswego, & 5 h. p., 3-ph. motor, fully automatic.
Punch & shear, No. C Cleveland.
Saw mandrels, #3.
Thread hobber, Pratt & Whitney.
Time clocks, International.
Trucks—1,000 factory trucks.
Woodworking machines.

Leather belting. Pulleys, shafting and hangers.

SECOND-HAND MACHINERY

FOR SALE BY

Herman L. Winterer,

943-53 N. Front St., Philadelphia, Pa.

LATHES.

43"x17' 4" Bement-Miles.
37 1/2"x14' Johnson d. b. g., q. c. f., t. a.
32"x12' Pittsburgh, heavy duty, q. c. g.
27"x12' Bullard.
26"x11' Wickes, q. c. g.
28"x10' Niles, q. c. g.,
25"x14' Hendey, q. c. g., taper attach-
ment, oil pan, (2).
24"x14' Porter.
21 1/2"x8' LeBlond.

20"x8' 6" Walcott, d. b. g., c. g., (2).
20"x 8' Whitcomb Blaisdell, q. c. g.
19"x10' Draper, patent head.
18"x 8' Davis, q. c., d. b. g.
18" x 7' Chard, d. b. g., semi q. c. g.
18"x6' to 8' lathes, (6).
16"x 8' Greaves & Klusman, b. g., t. a.
14"x 8' Filsmith, q. c. g.
14-22"x6' Barnes extension gap.
And many others.

TURRET LATHES.

3 1/2"x28" Pond, triangle.
3x36" Pratt & Whitney, hollow hex.
20x7' 6" Pratt & Whitney, back grd.
20x7' Bridgeport, 2 1/2" h. s.
19"x7' Fay & Scott, back grd.
No. 22 1/2' Garvin Monitor.

No. 3 Kempsmith.
14"x 6' Warner & Swasey.
16"x6' Johnson, back grd.
No. 3 Hardons & Oliver back grd.
14"x5' 3" Pratt & Whitney, (2).
No. 3 Foster Kimball.

DRILL PRESSES.

42" Gang radial, s. p. speed box.
40" Barnes horizontal radials, (2).
36" Bickford radial, circular base,
motor driven.
36" Fosdick radial, tapping att.
34" Barnes, s. h., geared feed, comp.
table.
28" Rockford, q. c. g. feed, (2).

24" Sibley & Ware, sliding head.
24" Aurora, sliding head.
20" Champion, stationary head.
20" Excelsior, stationary head, (2).
20" Sibley & Ware, b. g.
Henry & Wright sensitive.
Plain drills, all sizes.
Drill presses, assorted sizes.

MILLING MACHINES.

No. 5 Cincinnati, table 9' x 50 1/2".
No. 15 Garvin, table 12' x 42".
No. 3 Becker Brainard, table 12' x 40".
No. 3 Becker-Brainard, new model,
q. c. g., vertical attachment.

No. 3 Hendey-Norton, q. c. g.
No. 5-C Becker vert., rotary table.
No. 5-H Becker vert., table 14' x 43".
No. 7-H Lincoln type Becker miller.
No. 1 Milwaukee plain.

PLANERS AND SHAPERS.

12'x10'x25' Sellers planer, 4 heads.
30"x30"x8' Hewes & Phillips planer.
30"x30"x8' Putnam planer.
48" Morton draw-cut shaper.

39" Pedrick & Ayer, open side.
15" Lodge & Davis shaper.
14" Warren shaper.

MISCELLANEOUS.

Boring mill, car wheel, 60" Newton.
Boring, drilling and milling machine,
17 1/2' Bement Niles horizontal.
Boring mill, No. 1 Sellers, horizon-
tal, 2 1/2" bar.
Boring mill, No. 3 Binsse, horizon-
tal, 2 1/2" bar.
Grinder, 13 1/2"x5' Landis universal.
Grinder, No. 1 Brown & Sharpe univ.
Grinder, disc, No. 17 Besly.
Hammer, 15 lb. Bradley helve.
Hammer, 25 lb. Little Giant, m. d.
Hammer, 40 lb. Bradley helve.
Hammer, 60 lb. Hotchkiss.
Hammers, 60 lb. Bellefonte upright; 2
Hammer, 500 lb. Merrill board drop.
Hammer, 750 lb. Merrill board drop.
Hammer, 1250 lb. Bell steam.
Keyseater, 18" stroke Morton.

Molding machine, 24" Taber, with
roll over.
Punch presses, all sizes, (55).
Punch, multiple, No. 5 H. & J.,
gate pat., 86".
Punch & shear, No. 2 H. & J., dbl.
end, 20" th. cap., 1 1/2" in 1".
Punch, No. 2 H. & J., 15" th., arch.
jaw, 1 1/2" in 1".
Punch, single end, 31" th., arch.
jaw, cap. 1" in 1".
Punch, horiz., L. V., grd., cap. 1".
Punch & shear, Industrial Wks. d. e.,
capacity 1" in 1"; shearing 1" x 6".
Riveter, air, 6" gap Allen, cap. 1 1/2".
Riveter, air, 25" gap Allen, cap. 1".
Slotter, 14" Niles.
Tooth rounding mche., Schuchardt
& Schutte.

Large assortment of General Machinery. Send for Complete Price List.

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FOR SALE BY

M. A. Wertman, - - 505 Superior Bldg., Cleveland, Ohio

Automatic screw machine, 5-spindle Davenport.
 Blue printing and washing machine, 42" Pease automatic, 90%.
 Boring mill, 42" Bullard, 60%.
 Drill, 12" Leland-Gifford sensitive, 95%.
 Drill, four-spindle Allen, 7" overhang, 75%.
 Drill, 24" Aurora, sliding head, tapping attachment, motor drive, 98%.
 Grinder, 24" Ingersoll, cutter, 90%.
 Grinder, No. 1 Wilmarth & Morman surface, 95%.
 Grinder, Thompson universal, full equipment.
 Milling machine, 48"x36" Ingersoll, adjustable rail type.
 Planer, 60"x60"x12' Cincinnati, four head.
 Shaper, 20" American, b. g.
 Swaging machine, Etna, 4" capacity in tubing, 90%.
 Shear, 8' Ohi, 3/16" capacity.

FOR SALE BY

Hill, Clarke & Co., Inc., - 156 Oliver St., Boston 9, Mass.

Machinery Bargains
BORING MACHINES.

Lucas horizontal, 3" bar, single pulley drive.

BALL BEARING SENSITIVE DRILLS.

Leland-Gifford 2 and 4 spindles. Allen 2, 3 and 5 spindles.

UPRIGHT DRILLS.

Aurora 24". Prentice 25", 28" and 32".

Barnes 20", 22" and 25". Snyder 20" and 25".

Hoefer 24".

RIVETERS.

Harvey Hubbell, 1" and 3/16" capacity.

GEAR CUTTERS AND HOBBER.

Barber-Colman No. 2 hobber.

Becker-Brainard 18", 24" & 36" auto. gear cutters, for spur, bevel and worms.

LATHES.

13" to 18" including F. E. Reed, LeBlond, Greaves-Klusman, Robbins, Flather, Seneca Falls, etc.

PLAIN MILLING MACHINES.

Brown & Sharpe No. 14.

Cincinnati Nos. 3 & 4, high power

Hendey No. 14.

single pulley drive.

Cincinnati Nos. 2 & 3, cone drive.

UNIVERSAL MILLING MACHINES.

Kempsmith No. 1.

Becker-Brainard No. 2.

VERTICAL MILLING MACHINES.

Cincinnati No. 3 high power, single pulley drive.

Becker-Brainard No. 5B.

PLAIN GRINDERS.

Morse No. 1, 4"x20".

Norton 6"x32".

Modern, No. 12, 5"x30".

Norton 10"x50" self-contained.

CUTTER GRINDERS.

Greenfield No. 1.

Norton No. 2, with power feed.

SURFACE GRINDERS.

Diamond No. 1, 24"x12".

Pratt & Whitney vertical with 12" wheel, 24" feed.

PRESSES.

Baird No. 1, double action.

Standard machinery No. 3A, with

Sidney No. 0 inclinable.

roll feed.

Consolidated No. 3 inclinable.

Rudolph & Krummell No. 2A.

Bliss No. 214, geared inclinable, with tie rods.

Bliss No. 14 screw press.

Standard mchy. No. 1 screw press.

PIPE MACHINES.

Bignall & Keeler 8".

Forbes 8", hand and power.

PUNCHES AND SHEARS.

Canton No. 2 alligator shear, 14" bar capacity.

Cockburn-Barrow power punch, 24" throat, 54" flywheel, wt. about 10,000 lbs.

SECOND-HAND MACHINERY

FOR SALE BY

Clark Machinery Co., 1235-45 St. Clair Ave., Cleveland, O.

Bolt cutters, 4-sp. Webster & Perks.
Bolt threaders, $\frac{3}{4}$ " Nat'l Acme 2 sp.
Boring mill, No. 2 Rockford.
Chucking grinders, No. 6 Bryant.
Gear cutter, Sloan & Chase.
Gear cutters, Meiselbach.

Grinders, Pratt & Whitney plain.
Planer, 42"x42"x10' Gray, 2 heads.
Radial drill, Henry & Wright h. s.
Radial grinder, Rivett.
Thread miller, Milled Screw Co.
Turrets, P. & J. 5A & 6A.

FOR SALE BY

The Strong, Carlisle & Hammond Co., Cleveland, O., Detroit, Mich.

ENGINE LATHES.

14"x 6' LeBlond, l. c. g. and chuck.
14"x 6' Hamilton.
14"x 8' Monarch, c. r., stand, pattern.
15"x 6' South Bend, c. r., complete.
16"x 6' South Bend, c. r., complete.
16"x 8' Lodge & Shipley, old style,
c. r., q. c. g.

18"x 8' American, 3-step cone, d. b.
g., q. c. g.
18"x 8' Prentice c. r., l. c. g., chuck.
18"x 8' Schumacher-Boye & Emmes,
c. r., 5-step cone, s. b. g., q. c. g.
18"x10' Star, 4-s. c., s. g., with 16"
4-jaw ind. chuck.

TURRET LATHES AND

No. 2-A W. & S. g. h. tur. lathes.
No. 3-A W. & S. g. h. turret lathe.
26" Gisholt heavy duty turret lathe.
2"x24" Jones & L. g. h. flat turret.
No. 00 Brown & Sharpe auto., (6).
No. 0 Brown & Sharpe auto. (2).
No. 2 Brown & Sharpe auto. (2).
No. 4 W. & S., p. h., a. c. & b. f.

SCREW MACHINES.

No. 2 Warner & S. p. h. screw mche.,
a. c. & b. f., p. f. to turret.
No. 2 W. & S., p. h., a. c. and b. f.
No. 4 Warner & S., g. f. h., a. c. and
b. f.
18" Libby, factory rebuilt.
No. 2-G B. & S. automatics (3).
No. 2 B. & S. turret forming (2).

DRILLING MACHINES.

22" Cincinnati, sliding head, friction
back geared, power feed.
24" W. F. & J. Barnes, sliding head,
back geared and power feed.
24" Baker heavy duty.
No. 2-D Minster heavy duty, plain
table, with pump. (2).
No. 2-D Minster heavy duty, with
compound table, with pump.
4-spindle Leland-Gifford, h. s., b. b.,
with p. f. to each spindle.
24" Mueller plain radial with t. a.

6' arm Western radial, with tap. att.,
arranged for motor drive.
20" Hamilton, w. and l.
20" W. F. & John Barnes, stationary
head, p. l. f.
12" Mechanics, friction driven.
6-sp. 12" Leland-G., h. s., b. b. (6).
12" 3-sp. Leland-G., h. s., b. b. (2).
14" 4-sp. Leland-G., h. s., b. b. (2).
14" 2-spdl. Avey, h. s., b. b., (2).
14" 3-spdl. Henry & W., h. s., b. b.
14" 4-spdl. Henry & W., h. s., b. b.

MILLING MACHINES.

No. 0 Bickett, hand, bench type (3).
Toledo hand milling machines (2).
No. 2-B B. & S. plain, constant s. dr.
No. 14 Rockford plain, with div. hd.

No. 2 Brown & Sharpe univ., with
vert. and rack cutting attachment.
No. 24 Ohio plain b. g. complete.
No. 1-Y Brown & Sharpe plain.

GRINDERS.

No. 10 B. & S. plain, (2).
No. 6-A Bryant internal.
No. 2 B. & S. surface.
No. 3 Brown & Sharpe universal.
LaSalle combination pl. and surface.

No. 1 LeBlond cutter grinder.
Type "DE" Hisey-Wolf internal.
No. 11 B. & S. plain grinders, (2).
Plain emery wh'l stand with column.

SHAPERS AND PLANERS.

16" Hendey friction, (2).
16" Ohio plain crank.
18" Walcott plain crank.

22"x22"x 8' Putnam planers (2).
24"x24"x 6' Gray planer.

METAL CUTTING TOOLS AND SQUARING SHEARS.

Higley cold saw.

3" new Davis cutting-off machine.

GEAR CUTTERS AND HOBBERS.

26" & 38" No. 3 Brown & S. auto.
No. 18 G. & E. vert., for spur & spiral.
No. 3 Barber-Colman.

No. 13 Brown & Sharpe auto.
No. 12 B. & S., bevel, (2).

HAMMERS.

Quickwork body hammer.

SECOND-HAND MACHINERY

FOR SALE BY

Syracuse Supply Company, 314 W. Fayette St., Syracuse, N. Y.

Guaranteed New Machines in original crates at prices below list:

Crucible, FD-104 Hoskins.
Drills, 21" Canedy-Otto (2).
Drills, 20" Buffalo (4).
Grinder, Churchill internal.
Lathe, 14"x6' Hamilton.
Lathe, 10"x5' Monarch.
Lathe, 14"x6' Monarch.
Lathe, 14"x8' Monarch.

Lathe, 16"x6' Monarch.
Miller, 42" type "B" Briggs.
Pipe machine, No. 70 Forbes.
Screw mchs., No. 4 W. & S. g. f. h., (3).
Slotter, No. 3 Rhodes.
Straightener, No. 24 Corey.
Tilted turret, No. 4 Wood.

Exceptional values in Used Tools:

Drill press, 25" W. F. & John Barnes.
Drill press, 4-spindle Reed sensitive.
Drill press, 3-spindle Reed sensitive.
Drill press, 2-spindle Reed sensitive.
Grinder, No. 0 Wilmarth & Morman.
Lathes, 14"x6' American (2).
Lathe, 14"x6' Monarch.
Lathe, 16"x6' Hendey, rebuilt.
Lathe, 16"x8' American, geared head, rebuilt.
Lathe, 16"x8' Monarch.
Lathe, 16"x10' American.
Lathe, 28"x12' Draper.
Miller, No. 5 Becker vertical.
Miller, No. 2 Brown & S., rebuilt.

Miller, No. 4 LeBlond, rebuilt.
Press, No. 69N Bliss.
Radial, 4' Cin'ti-Bickford, GB-BD.
Shaper, 16" Gould & Eberhardt.
Shaper, 24" Flather.
Thread miller, Lees-Bradner.
Tilted turret, No. 6 Wood.
Turret lathes, No. 4 Foster (2).
Turret lathe, No. 2 Warner & S., hollow hex.
Turret lathe, 24x26 Pratt & Whitney.
Turret lathe, No. 24 s. g. Garvin.
Turret lathes, 3x36 Jones & L. (3).
Turret lathe, 2x24 Jones & Lamson.

FOR SALE BY

Peninsular Machinery Co., 429-31 E. Jefferson Ave., Detroit, Mich.

LATHES.

13"x5' Champion, l. c. g.
13"x5' Blount speed lathes.
14"x6' Carroll-Jamieson, (2).
14"x6' Reed, l. c. g., (2).
16"x8' Bradford, l. c. g.
16"x8' LeBlond, quick change.

17"x8' LeBlond rapid product'n, m. d.
21"x11' LeBlond, all geared, (2).
21"x12' LeBlond line bearing, (3).
26"x10' LeBlond crankshaft, (2).
34x36 Lo-Swing.

DRILLING MACHINES.

3-spd. Henry & Wright, h. s., b. b.
22½" Sibley all-geared, p. f., with tap.
22½" Sibley all-geared, p. f.

23" Rockford, s. h., with taper.
28" Barnes, s. h., taper.
No. 3 Baush multiple.

MILLING MACHINES.

No. 0 Farwell q. c.
Briggs type A, (2).
No. 12 Brown & Sharpe.
No. 32 Kemp Smith.

No. 33 Kemp Smith plain.
No. 3H LeBlond plain, cone type.
No. 2 LeBlond all geared plain.
No. 2 Kemp Smith all geared vert.

TURRET SCREW MACHINES.

14" Defiance, f. h.
2" Milholland, f. h.

24x26 Pratt & Whitney, a. c.
No. 3 Foster f. h. turret lathes, (2).

GRINDERS AND POLISHERS.

10x24 Landis plain.
No. 24 Gardner vertical.
No. 70 Heald internal.
No. 50 Heald cylinder.
20" Blount wet grinders.

No. 15 Bryant, motor drive.
No. 26 Besly, double spindle, m. d.
No. 4 Webster & Perks polishing.
Bennett & O'Connell dbl. sp. pol.
No. 23-B Valley City disc.

MISCELLANEOUS.

Band saw, 6" Napier.
Centers, bench, Brown & Sharpe (3).
Cutting-off mchs., 4" Hurlbut-R., (2).
Filer, No. 2 Cochrane & Bly.
Gear tester, bevel, Gleason.
Hammer, drop, No. 5 Williams-W.

Lapping mchs., Bethel-Player, (2).
Metal cutter, No. 1 Gray.
Screw slotter, No. 1 National Acme.
Tooth round's, 12" Rochester aut. (2).
Tumbling barrels, No. 3-S Globe, (2).

SECOND-HAND MACHINERY

FOR SALE BY

W. P. Little Co.,

West 9th & Front Sts., Cleveland, Ohio

PUNCH PRESSES.

No. 1 Perkins bench, on stand.
No. 18 Bliss, o. b. l.

No. 3 Long & Allstatter, dbl. end.
No. 14 Williams & White.

TAPPING MACHINES.

No. 1 Garvin automatic.

Rickert & Shafer radial tapper.

GRINDERS.

No. 2 Bath.
No. 75 Heald internal.
14" Pratt & Whitney surface.

No. 3 Modern universal.
No. 6 Bryant internal.
16" Heald rotary surface.

MISCELLANEOUS.

Bolt cutter, 2" Reliance.
Broach, 3-A LaPointe Hudson.
Hammer, 250 lb. Morgan steam.
Hammer, 50 lb. Bradley upright.
Miller, 18" Cincinnati.

Miller, No. 13 Garvin.
Screw mche., Brown & S. No. 1 auto.
Spline miller, 2" Pratt & Whitney.
Turret, No. 4 Warner & Swasey.
Turret, No. 6 Warner & Swasey.

Partial list. Send us your inquiries. 150 other machine tools in stock.

FOR SALE BY

Brownell Machinery Co.,

150 Pine St., Providence, R. I.

BORING MILLS.

24" Bullard rapid production.
30" Baush vertical.

No. 1 Cleveland horizontal.

DRILLING MACHINES.

Henry & Wright sensitive radial.
25" Weigel, sliding head.
23" Snyder.
14" 1-spindle Allen, h. s., b. b.
4-spindle Dwight Slate, power feed.
3-spindle Cincinnati.

5-spdl. Henry & Wright, class "K".
No. 34-A Demco 3-spindle bench.
No. 34-A Demco 4-spindle bench.
No. 1 Langelier.
No. 2 Langelier, h. s., b. b.
14" Stanley sensitive.

GRINDERS.

No. 1 LaSalle surface.
No. 2 Brown & Sharpe cutter.
No. 1 Norton tool & cutter.
No. 2 Norton tool & cutter.

20" Taylor & Fenn wet tool.
No. 12 B. & S. plain cylindrical 8x36.
No. 1 B. & S. universal 10x24.

METAL CUTTING MACHINES.

7K Atkins Kwik Kut hack saws, 8x8.
No. 1 Burr cold saw.

No. 2 Burr cold saw.
No. 1 Racine hack saw.

TURRET MACHINERY.

3x36" Jones & Lamson flat turret.
No. 2 Southworth hand screw mche.
14x18 Pratt & Whitney b. g. hand screw machines.
No. 2 Garvin geared fric. hd., hand screw machine.

2"x24" Jones & Lamson flat turret.
No. 2P Potter & Johnston combination piston and piston ring machines.
Model B Cleveland full automatics, 1/2", 3/4".

PRESSES.

100 lb Standard, plain drop.
No. 54 Niagara s. a. power, 4" grd.
No. 60 Bliss rack & pinion.

400-ton Robertson hydraulic.
No. 1 Standard power screw, 20 tons.
No. 24 Atlas arbor press.

MISCELLANEOUS.

Filing machine, Thurston.
Gear cutter, No. 3 B. & S. auto., 26".
Gear cutter, No. 13 B. & S. auto., 18x4.
Marking machine, Martin hand.
Miller, No. 15 Garvin plain.
Miller, No. 4 Cincinnati pl., gear dr.
Miller, No. 1 Kempsmith universal.
Miller, No. 1 Kempsmith plain.
Miller, Whitney hand.

Pump, Deane 4x6 triple power.
Rolling mill, No. 8 Standard, roller bearing, 12x18.
Shear, McWilliams power, rotary.
Slotter, 12" Bement-Miles.
Vises, Garvin No. 14 swivel base milling machine vises, brand new, half price.

WOOD-WORKING MACHINERY.

Band saw, 26" Crescent.
Lathe, 20"x8" Fay & Scott pattern-makers.

Jig saw, No. 1 Beach.
Saw table, No. 650 Dover.
Saw table, Rollston, double arbor.

SECOND-HAND MACHINERY

FOR SALE BY

Surplus Material & Machinery Co., 8735 Kercheval, Detroit, Mich.

Drill, 24" Barnes, b. g., t. a.
Drill, M-1 Rockford horizontal.
Grinder, Baxter D. Whitney cyl.

Grinder, 26" Gardner disc.
Grinder, 12-42 Landis plain.
Motors, elec., lot 8-10-15 h. p., d. c.

FOR SALE BY

Cincinnati Machinery & Supply Co., 215 E. Pearl St., Cincinnati, O.

SHAPERS.

12" Juengst, complete, \$175.
16" Cincinnati crank shaper.
20" American crank shaper.

26" Ohio crank shaper.
28" Gould & Eberhardt, crank.
20" Steptoe crank shaper, \$275.
No. 4 Brown & Sharpe plain.
No. 3 Cincinnati vert., high power'd.

MILLING MACHINES.

No. 1 U. S. hand millers, (5).
No. 2 Cincinnati plain, \$285.
No. 3 Brown & Sharpe plain.

LATHES.

14"x 6' LeBlond, q. c.
14"x 6' Lodge & Shipley, q. c.
16"x 6' Reed, geared head, q. c.
18"x 8' Monarch, \$325.

20"x10' Lodge & Shipley, q. c.
27"x18' Lodge & Shipley, q. c.
32"x16' Schumacher & Boye, q. c.

PLANERS.

24"x24"x 8' Gray, \$550.
26"x26"x 8' Gray.

30"x30"x20' Hamilton.
48"x48"x14' Gray.

GRINDERS.

No. 60 Heald cylinder grinders.
10"x20 Landis.

10"x30 Landis.
No. 2 Brown & Sharpe universal.

RADIALS.

3' Bickford, cone drive.
3' Prentice, sgl. pulley, gear box.

2' Gang, single pulley.
8' American.

Complete stock of machinery and supplies, new and used.
Write us your needs.

FOR SALE BY

J. E. Haetten & Co., Inc., - 50 Church St., New York, N. Y.

Automatics, 1/2-3/4" Cleveland model A, (50), each.....	\$ 100.
Bolt cutter, 2" standard, with dies.....	400.
Boring mills, 42" Bullard, p. f., motors, each.....	1500.
Boring mill, 36" Bullard New Era, used 6 weeks.....	4500.
Drills, 36" Snyder, s. h., with tapping att., 98%, (2), each.....	500.
Drill, 14-spindle Bausch, 1 1/2" spindles, 1" cap., 30" circle, 98%.....	500.
Drill, No. 1SS Garvin duplex horizontal, 98%.....	400.
Grinder, 16x50 Norton crankpin, belt drive.....	1200.
Grinder, 6x32 Norton plain, belt drive.....	400.
Grinder, 6x32 Brown & Sharpe No. 11 plain.....	400.
Lathe, 78"x28" Putnam, triple geared, c. r., good condition.....	1800.
Lathe, 48"x28" Pond, 3-speed head, arr. for motor.....	1500.
Lathe, 20"x12" Johnson, geared head, taper, q. c. g.....	700.
Lathe, 24"x16" New Haven, old style but good.....	350.
Miller, 14"x48" table, Lincoln type, like new, (2) each.....	200.
Miller, No. 2 Owen universal, equipment and vertical att., 98%.....	750.
Planer, 60"x42"x16" Powell, 3 heads, belt drive.....	2500.
Planer, 120"x60"x22" Niles, 3 heads, belt drive.....	5000.
Press, 300 ton hydraulic, Bethlehem, 36" stroke, 95%.....	2300.
Press, 3/4" A Bliss toggle, 8"-12" strokes, 26" wide.....	1800.
Radials, 4' Niles semi-universal, s. p. d. 95%.....	1500.
Radials, 3' Carlton sensitive, b. d., tapping.....	450.
Shapers, 24" Smith & Mills, (2), each.....	750.
Thread miller, No. 12 Lees-Bradner, 95%.....	1200.
Turret lathe, 28" Gisholt 3/4" spindle bore, b. d., taper.....	900.
Turret lathe, 2" Foster No. 1B universal, lots of holders.....	750.
Turret lathe, No. 2A Warner & Swasey chucking.....	1200.

SECOND-HAND MACHINERY

FOR SALE BY

A. M. Stoshr Machinery Co.,

Bolt cutters, 3 & 6-spindle Acme.
Boring mills, 42" Baush; 54 & 60"
Niles; all have 2 heads; and others.
Compressors, 12 different sizes.
Drill presses, single spdl., L. & G.;
2-spindle H. & W.; 4-spdl. Foote-
Burt; 4-spdl. Barnes; 22" Rockford.
Gear hobbors, cutters; No. 12 Barber-
C., 48" & 60" G. & E.; 36" Fellows
gear shaper, and others.
Grinders, Heald piston ring (2);
No. 3 LaSalle plain and surface;
3x18" Norton, and others.
Header, No. 2 Manville.
Lathes, 22" to 44" McCabe; 18x8
Barnes, hvy. duty; 19x8 LeBlond,
q. c. g.; 16x8 Flather; 15 & 24 spin-
ning, and others.
Milling mchs., No. 25 Becker plain;
No. 6 Whitney; No. 6 Rockford pl.;
No. 3 Thurston dieing, & others.

560 W. Adams St., Chicago, Ill.

Oil extractors, centrifugal, (8).
Pipe machines, 6" Jarecki.
Punch presses, No. 16 Bliss horning;
No. 10 Torris Wold, o.b.i.; No. 58
Crosby; No. 69 Stoll s. e.; & other.
Punch & shears, No. 4 L. & A., d. e.,
4" thru 4"; No. 14 W., d. e., 15"
throat, No. 1-C New Doty, and
others.
Riveters, 1-B & No. 5-A High
Speed; No. 1 Townsend; No. 1
L. & A., 4" capacity, and others.
Saws, 9x9 Sterling high speed; 12"
band, and eight others.
Screw machines, Nos. 2 & 3 Foster
(12); Nos. 52 & 53 Acme, others
plain and automatic.
Shears, Pittsburgh alligator, 14".
Tapper, L. & G., 4" capacity.
Welders, both spot and butt.
Wire strait't'g mch., 4" Wells.

FOR SALE BY

The H. A. Smith Machinery Co.,

Syracuse, N. Y.

BORING MILLS.

Gisholt 36". Rockford horizontal.

Gisholt 42", motor drive.

CUTTING-OFF MACHINE.

Hurlbut & Rogers 4".

RADIAL DRILLS.

Hammond 4' sensitive, with tapping
attachment.

Fosdick, 3 1/2' arm.
Fosdick, 5' full univ., motor drive.

GEAR CUTTING MACHINERY.

Fellows No. 62 gear shaper, m. d.

26" Brown & Sharpe No. 3 spur.

Barber-Colman No. 12 gear hobbors,
(2).

GRINDERS.

10x72 Landis, motor drive.

12x48 Modern.

16x52 Landis.

Brown & Sharpe No. 23 internal.
Madison (Gisholt) automobile cyl-
inder grinder.

LATHES.

14"x24"x34" Barnes, gap.

14"x 6" Hendey, with collets.

16"x8" Pratt & Whitney.

18"x8" Cisco, with taper.

21"x12" Porter, with raising blocks
to 34".

20"x10" Greaves-Klusman, geared
head, with raising blocks to 28".
12"x6" Seneca Falls tool room, (3).
Porter-Cable, (3).
Gisholt 16" simplified roughing.

MILLING MACHINES.

Cincinnati No. 3 plain, motor drive.

Brown & Sharpe No. 13, production.

Newton No. 365, spline.

Brown & Sharpe No. 3 vertical, late
type.

Brown & Sharpe No. 5 vertical.

PLANERS.

72"x54"x24" Pond, 4 heads.

36"x36"x24" Pond, 4 heads.

26"x26"x 8' Niles.

SHAPERS.

15" Hendey.

20" Cincinnati, back geared.

20" Hendey, back geared.

24" Hendey, motor drive.

AUTOMATIC SCREW MACHINES.

Brown & Sharpe No. OG.

Cleveland 4 1/2", (2).

No. 53 National Acme four-spindle.

No. 55 National Acme four-spindle.

TURRET LATHES.

Warner & Swasey No. 4.

Warner & Swasey No. 6.

Gisholt 21", (3).

SECOND-HAND MACHINERY

FOR SALE BY

G. W. Leers & Co., 344 Engineers Building, Cleveland, Ohio

Bolt cutter, 1½" cap., single spindle, Foote-Burt, with Landis head.
Hack saw machine, 9x9 Peerless, condition excellent.
Hammer, 200 lb. Bradley upright helve, condition equal to new.
Milling machine, Ingersoll, adjustable rail, two rail heads, two side heads, condition equal to new.
Planer, 30"x30"x12' Gray, two rail heads, belt or motor drive, condition excellent.
Turret lathe, No. 6 Warner & Swasey, condition equal to new.

FOR SALE BY

D. C. Oviatt & Co., 1100 St. Clair Ave., Cleveland, O.

PRESSES.

Bliss Nos. 1½ & 3½ B, toggle.
Bliss No. 2 double crank.
Bliss "Stiles" Nos. 3 & 4.
Bliss 27-K knuckle joint.
Bliss No. 62, flywheel or geared.
Bliss 68-C & 68-N double action.
Bliss 73½, 74½, 75½ presses.
Toledo 34-P, 35-P, 36-P presses.
Toledo 55½ trimming press.
Toledo 59 & 59½ s. s. presses.
Toledo 202-D special double crank.
Toledo No. 666 knuckle joint.
Ferracute P-4, PG-5, EG-22.
Consolidated 56, 65, 75, 165.

MISCELLANEOUS.

Automatics, Gridley 8", 11", 14".
Bulldozers, W. & W. 2, 4, 6, 30.
Drills, Colburn D-1, D-2, D-3.
Grinders, disc, Gardner 6 & 7.
Grinder, Pratt & Whitney 14".
Rivet hammer, 3A, 4A, 5A, 6B.
Shear, alligator, Canton No. 5.
Shear, alligator, Hilles-Jones No. 2.
Shear, Niagara 416-C slitting.
Shear, Toledo 36"x18 ga. power.
Tapper, Garvin No. 2 automatic.
Tumbling barrels, 18"x30"x48".
Turret lathes, W. & S. 4 and 6.
Turret lathe, Libby 18".

Over 400 Machine Tools in stock. Send us your inquiries.

FOR SALE BY

Bardons & Oliver, Cleveland, Ohio

ENGINE LATHES.

18"x8' Flather, compound rest, p. f. & t. a.	\$ 120.
14"x6' Flather, compound rest, p. f. & t. a., (2)	160.
22"x8' Flather, compound rest & power cross feed.	120.
14"x6' Reed eng. lathe, with compound rest & p. c. f.	125.
14"x6' P. & W. eng. lathe, with compound rest & p. c. f.	135.
32"x16' Gleason, double back gears, compound rest, power cross feed and rack feed to tail stock	600.
19"x8' LeBlond heavy duty, with compound rest, quick change gears, p. c. f., arranged for t. a.	650.
18"x8', with compound rest and power cross feed.	130.
22"x8' Flather, compound rest, with power cross feed.	150.

MILLING MACHINES.

Pratt & Whitney plain milling (Grant pattern)	\$ 150.
No. 12 Kempsmith milling machine (Lincoln pattern)	120.

BORING MILL.

No. 2 Rochester horizontal, with single pulley drive	\$ 500.
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PLANERS.

24"x24" Cincinnati, one head, arranged for motor dr., without motor.	\$ 1200.
6"x6" Walter Bros., arranged for motor drive, without motor.	200.

MISCELLANEOUS.

Thread milling machine, Trundle, with several collets. This machine is new, and has never been run \$ 1100.
Turret Lathes—We also have several of our older type No. 1—13/16 capacity Turret Lathes. These machines are new. Price, each \$ 400.

SECOND-HAND MACHINERY

FOR SALE BY

McCoy-Brandt Machinery Co., 210-14 Penn Ave., Pittsburgh, Pa.

Accumulator, Southwark, 10", 15' str.
Air compressor, 10" x 10", with motor,
3-60-220 volts.

Air compressor, 212 cu. ft., Chicago
portable, oil driven.

Boring mche., 5" bar, Barrett horiz.

Boring mill, 48" Colburn, 2 heads.

Boring mill, 6" bar, Niles horiz.

Boring mill, 10' Niles, 2 heads.

Bulldozers, Nos. 5 & 30 W.-W.

Bulldozer, No. 8 Ajax, 36" str., m. d.

Drills, radial, 5' Prentice, s. p. d.

Drill, radial, 6' Prentice, belt drive.

Forging machines, 2" and 3".

Grinder, 16" x 68" Landis crankshaft.

Grinders, 12" x 48" Cincinnati plain.

Grinder, Gisholt universal tool.

Grinder, 36" Diamond wet tool.

Grinder, 10x32" Ott universal.

Grinder, No. 4 Gardner double disc.

Lathe, No. 5 Fivett precision with
turret, etc.

Lathe, 16" x 10' L. & S., cone, taper.

Lathe, 19" x 14' LeBlond, grd. hd.

Lathe, 24" x 26" American, q.c.g., m. d.

Lathe, 27" x 18' L. & S., m. d., t. a.

Lathe, 30" x 18' L. & S., m. d., t. a.

Lathe, 36" x 20' Sidney, q. c. g., cone.

Lathe, 54" x 31' Johnson, trip. grd.

Millers, horiz., Nos. 3 & 5 Cincinnati.

Miller, vertical, No. 9 Bickett.

Millers, Nos. 2, 5C & 6 Becker vert.

Millers, vertical, No. 3 Brown &
Sharpe, motor drive.

Miller and driller, No. 1 Knight.

Motor, $\frac{1}{2}$ h. p. Wagner, 1-60-110,
1750 r. p. m.

Pipe machines, 12", 10", 8", 4" & 2".

Planer, 30" x 30" x 8" N. B. P., 1 head.

Planer, 36x36x12" Powell, 3 heads,
like new.

Planer, 30" x 30" x 8" Flatther, 1 head.

Punch, 36" Cleveland $1\frac{1}{2}$ " x 1", m. d.,
arch. jaw.

Punch, 24" Cleveland $1\frac{1}{2}$ " x $1\frac{1}{2}$ ", m. d.,
arch. jaw.

Rolls, bending, 16" x $1\frac{1}{2}$ " Wickes, m. d.

Shaper, 26" Springfield, crank, b. g.,
with down feed and concave art.

Shears, guil., cap. 24" and 2" and 1".

Shear, rotary bevel, cap. $\frac{1}{2}$ ", m. d.

Slotter, 12" Newton, crank, cheap.

Turret lathe, 18" Libby, like new.



The Blue Book

Goes to the Heart of 96% of
the Best Plants in the Country

The above statement is the result of careful mail inquiries directed
to thousands of the larger tool-using concerns.

PUNCH PRESSES Immediate Shipment Excellent Condition

No. 169 $\frac{1}{4}$ Toledo Toggle Drawing Press, tie rod frame, stroke of plunger 26", stroke outer slide 14".

No. 58 $\frac{1}{2}$ Toledo straight side tie rod frame, double geared 14" stroke.

No. 10 Rockford straight side tie rod frame, with side shear, 4" stroke.

No. 3 American Can Inclinable (two).

No. 18 Bliss Inclinable (four).

No. 13 Niagara Horn Press with table.

No. 31 Toledo Solid Back.

OTHER MACHINES (Partial List)

8— $\frac{5}{8}$ "- $\frac{7}{8}$ " Cleveland Model A Screw Mchs., high serial Nos.

2" Cleveland Model A Auto. Screw Machine, Serial 26302.

16"x48" Landis Crank Pin Grinder, self contained.

No. 2 Landis Universal Grinder, nearly new.

No. 6 Becker Vertical Miller, 60" table feed.

No. 5B Becker Vertical Miller, excellent condition.

No. 3 Kemp Smith Plain Miller, excellent condition.

No. 3 Pratt & Whitney Die Sinker.

36" Niles Vertical Boring Mill, 2 heads.

42" Bullard Vertical Boring Mill, motor drive.

20"x10' American Quick Change Geared Head Lathe.

18"x8' Lodge & Shipley Geared Head Lathe.

24" Kelly Back Geared Crank Shaper.

No. 3 Warner & Swasey Fox Lathe, chasing bar.

No. 119 Bliss Screw Cap Thread Rolling Machine.

No. 2 Wells Auto. Wire Straightener, cap. No. 9 Wire.

No. 10 Waterbury-Farrell Thread Roller.

No. 5 Etna Swedging Machines, 2 $\frac{1}{2}$ " cap.

**24" and 36" Bullard Vertical Turret Lathes,
excellent condition.**

A. D. White Machinery Co.

108-114 N. Jefferson St.,

CHICAGO, ILL.

Special November Bargains

You can't afford to overlook

All Machines thoroughly Overhauled and Rebuilt

LATHES

24"x12' Greaves-Klusman Heavy Pattern Lathe, with double back geared head and full equipment, including two chucks.

Special Price \$1675.00

30"x10' "American" High Duty Lathe, with double back geared head and complete equipment.

Special Price \$2000.00

RADIALS

3½ Ft. "American" TRIPLE PURPOSE Radial, arranged for Simplified Motor Drive (Motor on Arm) and with complete equipment. (In every way the equivalent of a new machine.)

Special Price \$1775.00

6 Ft. Bickford Triple Geared Radial, with gear box arranged for belt drive, and with complete equipment.

Special Price \$2500.00

In addition to these special bargains we have a variety of Lathes, Planers, Shapers, Radials, Milling Machines, Grinders, etc., to offer at attractive prices.

Send for our complete list. There is no obligation.

The American Tool Works Co.
Cincinnati, U. S. A.

Builders of LATHES — SHAPERS — RADIAL DRILLS

Factory Rebuilt Machines

Guaranteed

CINCINNATI ACME TURRET MACHINERY

- 3—1"x7" plain head screw machines without power feed to turret.
- 4—1"x7" plain head screw machines with power feed to turret.
- 1—1½"x9" friction back geared screw machines with power feed to turret.
- 1—2¼"x26" flat turret lathe (cone head type) with bar equipment.
- 2—2¼"x26" flat turret lathes (cone head type) with plain equipment.

NOTE: Screw machine equipment includes automatic chuck, one collet, stock feed, pan, pump and piping and countershaft.

The Acme Machine Tool Co.
Cincinnati, Ohio

FOR SALE

**5—3 SPINDLE National High Speed
DRILL PRESSES \$110.00 each.**

**6—NO. 1 CINCINNATI Back Geared Plain
MILLING MACHINES \$275.00 each.**

4 Spindle NATIONAL ACME Screw Machines

6—No. 52— ⅞" Capacity ---- \$425.00 each.

2—No. 53—1⅜" " ---- 475.00 "

2—No. 55—1⅝" " ---- 600.00 "

3—No. 56—2¼" " ---- 650.00 "

CINCINNATI AUTOMATIC MACHINE CO., Cincinnati, Ohio

Machinery and Equipment from the World's Greatest Stock!

SHEARS

6"x6"x1" Cleveland double angle shear, M 10 turn table.
24" thrt. Cleveland single end shear.
24" thrt. Morgan double end shear cap. 5/16"x24".
Type R. T. Pels I Beam sh. 15" cap.
No. 2 Bethlehem rotary shear 1/2" cap.
20" Mackintosh hyd. bloom shear.
14" cap. Alligator shear.
24" Chicago alligator shear.
5" Carlin alligator shear.
6" United alligator shear.

GRINDERS

No. 224 Diamond roll.
12"x36" Fitchburg plain.
10"x48" Landis universal.
16"x36" Landis universal.
16"x60" Landis universal.
16"x66" Landis universal.
16"x68" Landis crankshaft.
20"x54" Diamond surface.
No. 4 Gardner disc, 20".

COLD SAWS

90" Newton cutting-off.
62" Newton cutting-off.
20" Newton cutting-off.

PIPE THREADING MCHS.

2" Curtis.
6" Bignall & Keeler; 6" Saunders.
12" Bignall & Keeler.

POWER HAMMERS

500 lb. Bradley upright; Baudry.
80 lb. Bradley helve.

STEAM HAMMERS

400, 600, 800, 1000, 1200, 1500 and 6000 single frame.

2000, 2500, 4000, 6000 double frame Bement & Chambersburg.

BOARD HAMMERS

400, 600, 800, 1000, 1500, 2500 and 3000 Bliss, P. & W. & Chambersburg.

AIR COMPRESSORS (BELT)

67" Ingersoll ERI.
58" Curtis vertical.
92" Ingersoll ERI.
235" Blaisdell.
275' & 350' Gardner.
464' Sullivan.

STEAM COMPRESSORS

20" Westinghouse loco. type.
60" New York loco. type.
150" Ingersoll.
425" Clayton.
600" Ingersoll.
1750" Chicago Pneumatic Tool.
9383" Norberg 2 stage.

TANKS

317,000 gal. steel vertical.
72,000 gal. steel tower.

STEAM ENGINES (VERT.)

6"x6" Rowland & Burns, 10 h. p.
7"x8" Troy, 17 h. p.
10"x12" Wachs, 35 h. p.
9"x9" Rowland & Burns, 25 h. p.
9"x9" Snell, 20 h. p.
9"x7" American, 19 h. p.
7"x7" Davis, 15 h. p.

STEAM ENGINES (HORIZ.)

9"x9" Rowland & Burns.
7"x10" Atlas 15 h. p.
12"x16" Chandler & Taylor 60 h. p.
12"x24" Buckeye 100 h. p.
14"x20" Russell 130 h. p.
16"x36" Allis-Chal. cor. 200 h. p.
18"x42" Cooper Corliss 286 h. p.
19"x18" Ridgway 238 h. p.
19"x15"x11" American 80 h. p.
10"x16" Sturtevant 80 h. p.
23"x36" Buckeye 275 h. p.

TANK CARS

7000-gallon cap. acid tank cars.
8000-gallon cap. oil tank cars.

MOTORS

A C & D C from 1/2 h. p. up to 500 h. p.
Induction and slip ring.

MISCELLANEOUS

No. 19 Jeffry mining machine m. d.
No. HW Sullivan 400' prop. drill.
5-ton Hoover & M. Ore Unloaders.
5-ton Gantry cranes 65' boom.
1-ton Loudon traveling crane.
40' Gauge Gantry crane.
1-ton box electric hoist 40' lift.
3-ton P. & H. monorail hoist.
5-ton P. & H. monorail hoist.
10 ton Insley stiff leg derrick.
70' floating dredge.
70' steel gin pole.
No. 1 Cleveland hor. I beam bender.
3-spindle Scotch boiler drills.
8' H. & J. mangling rolls.
30" Lysholm plate punch table.
20" Lysholm plate punch table.
35"x54" Weatherston spacing table.
8"x5"x1/2" H. & J. angle planing mch.
H. & J. channel and bar bevel mche.
8"x6" Shipbuilders' angle bevel mch.
No. 35 Union Hercules embos. mch.
Nelson bolt & nut assembling mche.
Nelson rivet & bolt sorting mche.
6-spindle Richmond staybolt drill.
365-ton Camden joggling press.
Bertram boilermakers' oval punch.

FREE! 144 Page Industrial Bulletin No. H-209

HARRIS BROTHERS COMPANY

35th & Iron Sts., CHICAGO

MILLING MACHINES

No. 4 R. K. LeBlond univ., cone pul.
No. 3 Cinti. standard univ., sgl. pul.
No. 3-A B. & S. univ., sgl. pulley.
No. 3 R. K. LeBlond univ., cone pul.
No. 3 Cinti. hi-pwr. pl., sgl. pulley.
No. 3-B hvy. B. & S. pl., sgl. pulley.
No. 3 Kemp Smith plain cone pulley.

No. 2 Cinti. high pwr. pl., sgl. pul.
No. 2-B B. & S. pl., single pulley.
No. 2 Cinti. plain, cone pulley.
No. 0 Cincinnati plain cone pulley.
Becker large hand miller.
28" Cinti. duplex, semi-automatic.
No. 22 Garvin vertical cone pulley.

LATHES

30"x24" Niles, with motor.
36"x22" Putnam, tri. g., semi q. c. g.
30"x16" Houston Stanwood & G., q. c.
30"x12" R. K. LeBlond, qck. chg.
30"x12" American standard change.
27"x16" Lodge & Shipley, q. c.
24"x10" American, q. c.
24"x14" Lodge & Shipley, q. c.
22"x10" Hamilton, semi-quick chg.

20"x10" Bradford, standard change.
18"x10" Greaves & Klusman, q. c.
18"x 8" Chard, q. c., with taper.
18"x 8" Lodge & Shipley, q. c. g.
16"x 8" Hendey, q. c., with taper.
16"x 8" Hamilton, q. c.
14"x 8" Hamilton tool room q. c.,
taper, relieving and collet att.
14"x 6" Monarch.

TURRET LATHES & SCREW MACHINES

3x36 Jones & Lamson flat turret.
No. 4 Milholland turret screw machine, power feed.
No. 4 B. & S. turret screw machine.

No. 24 S. G. Garvin turret screw machine, new.
No. 1 S. P. Garvin turret screw machine, new.

GRINDERS

14" P. & W. vertical surface, with magnetic chuck.
No. 2 B. & S. surface, with mag. chk.
No. 60 Heald cyl., complete equip.
6"x32" Norton plain cylindrical.

6"x15" Fitchburg plain cylindrical.
No. 2 B. & S. univ. cylindrical.
No. 1 B. & S. univ. cylindrical.
No. 2 Ohio univ. tool & cutter.
No. 1 1/2 Cinti univ. tool & cutter.

GEAR CUTTERS

No. 4 48" B. & S. auto., spur.
36" Gould & Eberhardt auto., spur.
26" Cincinnati auto., spur.

No. 12 Brown & Sharpe auto. spur & bevel.
No. 12 Barber-Colman gear hobber.

DRILLING MACHINES

5' Niles semi-univ. radial, arranged for motor drive, no motor.
5' American plain radial.
3 1/2' Fossdick plain radial, b. d.
26" Prentice upright, gear box drive.
24" Cinti-Bickford upright, gear box drive and tapping.
24" Milwaukee upright.

24" Rockford upright.
23" Rockford upright, with tapping.
20" Kern upright, with tapping.
3-sp. Demco h. s., b. b. sensitive.
2-sp. Kokomo h. s., b. b., sensitive.
2-spindle Henry & Wright high speed, b. b., power feed.
Sipp high spd. ball bearing q.c. sens.

SHAPERS AND PLANERS

28" Queen City b. g. crank, gear box drive, new.
28" Gould & Eberhardt b. g. crank.
20" American b. g. crank.
16" Smith & Mills plain crank.
16" Kelley plain crank.
15" Potter & Johnson universal.

42"x36"x10" American planer, 1 hd.
38"x38"x18" Niles dbl. housing planer,
2 heads on each rail, d. c., motor driven, with motor.
30"x30"x8" Cinti planer, belt dr., 1 hd.
30"x30"x8" G. A. Gray, planer belt drive, 1 head.

MISCELLANEOUS

Bolt threader, 1" Landis, 2 spindle.
Bolt threader, 1" National, with diehd.
Bolt threader, 4" Acme dbl. spindle.
Broaching machine, No. 3 J. N. La-Pointe, late type, fric. pulley dr.
Die slotter, Garvin rotary table.
Hand brake, 8" J. M. Robinson,
cast iron, 18 ga. and lighter.

Electric spot welder, Federal Jr.
Keyseater, No. 2 Mitts & M., belt dr.
Keyseater, No. 3 Baker Bros., belt dr.
Pipe machine, 2" Williams, power.
Pipe machine, 4" Jarecki, power.
Power press, No. 6 Niagara o. b. i.
Power press, No. 4 Toledo o. b. i.
Power press, No. 3 1/2 Toledo o. b. i.

And Many Others. Send For Our Complete List.

EASTERN MACHINERY CO.

No. 408 East Pearl St.,

Cincinnati, Ohio

J.J. McCABE SINGER BUILDING NEW YORK CITY

LARGE BORING MILL

8' sw., Niles Vertical Boring and Turning Mill, 2 swivel heads, table 68" diam. 54" height, under tool. Double box cored housings, cone-drive. Excellent condition.

McCABE "2-in-1" LATHES

DOUBLE SPINDLE CAPACITY

26-48" swing, 12' bed.
32-54" swing, 14' bed.
26/48" swing x22' bed.
26/48" swing x28' bed.

McCabe-Former Pattern

24-40" swing, 10' bed.
26-44" swing, 10' bed.

NEW "2-in-1" LATHES

12-ft. to 32-ft. Beds

OTHER LATHES

15" sw., 6' bed, Sebastian.
18" sw., 10' bed, McCabe, q. c.
20" sw., 8' Schumacher & Boye.
21" sw., 12' bed, McCabe, q. c.
24" sw., 14' bed, Prentice.
26" sw., 18' Schumacher & Boye.
26" sw., 14' bed, Niles-Bement-P.
32" sw., 20' bed, McCabe, q. c.
42" sw., 16' bed, McCabe, geared head, quick change.
50" sw., 20' bed, Pond.
50" swing, 24' bed, Bement-Miles, triple geared.
84" sw., 46' bed, Putnam, motor-dr.
110" swing, 42' bed, Bement-Miles, 5" blocks.

PLANERS

84"x60"x30' Pond, 4 heads.
72"x72"x24' Niles, 4 heads.
54"x54"x12' Pond, 4 heads.
48"x48"x15' Pond, 2 heads.
36"x36"x12' Gray, 2 heads.
26"x26"x 6' Niles, 1 head.

A FEW OF THE OTHER BARGAINS

12" stroke, Smith & Mills Shaper.
18" stroke, Ohio Shaper.
30" Gould & Eberhardt Gear Cutter.
18" Gleason Bevel Gear Cutter.
No. 15 Bliss Press.
28" Espen-Lucas Cold Saw.
"IM" Q. & C. Cold Cut-Off Saw.
25 lb. Dupont Hammer.
50 lb. Little Giant Power Hammer.
42" Bullard Boring Mill.
No. 3 Baker Keyseater.
24' arm Radial Drill, speed box.
4' arm Radial Drill, speed box.
24" stroke, Bement-Miles Slotter.
21" Turret Lathe, Gisholt Gap.
3x36" Jones & L. Turret Lathe.
Horizontal & Vert. Newton Miller.
No. 5 Hendey, Lincoln type Miller.
No. 3 Cincinnati Plain Milling Mch.
No. 22 Brainerd Plain Milling Mch.
No. 14 Landis Universal Grinder.
Bridgeport Roll Grinder.
48" bar, Bement-Miles Horizontal Boring Mill.
28" Bar Horizontal Boring Mill.
42" throat Perkins Punch.
50" throat McCabe Punch & Shear.
60" throat H. & J. Horiz. Punch.
10' McCabe Rolls, drop end.
800 lb. Bement Steam Hammer.
18" Gap Air Riveter.
14" Acme Bolt Cutter.
3-Hack Saws.

MANY OTHER LARGE TOOLS—

of the kind rarely found on the Used Machinery Market.

WRITE FOR THE NEW COMPLETE LIST

J. J. McCabe Lathe & Machinery Corp'n
SINGER BUILDING - - NEW YORK CITY

Largest Stock In The East

NEW and REBUILT
High Grade Modern Machine Tools
GUARANTEED

At Prices to Net You a Worthwhile Saving

BORING MILLS

- 4—Bullard 24" New Era type.
- 1—Landis No. 35 horizontal.

DRILLS—Upright and Radial

- 12—New 24" Sibley upright.
- 15—Allen 1, 2, 4 and 6 ipindle.
- 1—Foote Burt 4½, 4-spdl., rail.
- 2—New Turner No. 3, vert. tur.
- 1—Mueller 3½" Radial, s. p. d.
- 1—N.-B.-P. 96" Ridgeway, motor drive, plain radial.
- 1—Baush 6" drill.

DRILLS—Multiple Spdl., Rect. Head.

- 1—Natco No. 14, q. c. g.
- 1—Natco No. 30, 12 spindle.
- 2—New Baush No. 3, 21 spdl.
- 1—New Baush No. 4, 56 spdl.
- 1—Fox, 6 spindle.
- 1—Moline No. 17, 4-spindle.

LATHES

- 2—Hendey 12x5, yoke head.
- 2—Rahn-Larmon 16x8, q. c. g.
- 1—Hendey 16x8, yoke head.
- 1—Hendey 18x6, yoke head.
- 1—P. & W. 16x6, q.c.g., tool rm.
- 1—Bradford 16x12, q. c. g.
- 2—Mueller 18x8, q. c. g.
- 1—LeBlond 27x16, s. p. d.

MILLERS—Plain, Mfg., Univ. & Vert.

Over 75 in Stock. Advise your requirements.

SCREW MACHINES—Automatic

- 12—Gridley 4-spindle, ⅞", 1¼", and 1¾" cap.
- 6—Cleveland Model A, ⅞"-1¼".
- 2—Cleveland 2¼" Model A.
- 18—Cleveland ½"-⅞" cap., 1¼".
- 1—Cleveland 7¾" automatic.
- 1—B. & S. No. 6 full automatic.
- 1—New Britain 1x5 bar mch.
- 9—New Britain Nos. 24, 33 and No. 34 chucking.
- 1—New Britain 1½x7.

TURRET & SCREW MCHS.

- 4—Brown & Sharpe No. 6.
- 6—Potter & Johnston No. 6-A.
- 6—Potter & Johnston No. 5-A.

GEAR CUTTERS

- 10—Barber-Colman No. 3.
- 5—Barber-Colman No. 12.
- 4—Hercules 8".
- 2—Brown & Sharpe 3x36.
- 1—Brown & Sharpe 4x36.
- 5—Brown & Sharpe 3x26.
- 1—Brown & Sharpe No. 13.
- 1—S. & S. 26" spur and spiral.
- 1—Fellows Nos. 61 & 6.
- 1—Gleason 6" bevel.
- 3—Gleason 11" dbl. tool gen.
- 1—Gleason 18" dbl. tool gen.
- 1—Gleason 24" gear planer.
- 2—Gleason 15" spiral bevel finishers.
- 1—Gleason 15" spiral bevel gear roughers.

GRINDERS

- 18—Heald No. 70.
- 10—Heald Nos. 65 & 60.
- 1—Brown & Sharpe No. 4 univ.
- 1—Diamond No. 2 surface.
- 1—Diamond 64" face.

SHAPERS AND SLOTTERS

- 3—New 16" Davis Shapers, s.p.d.
- 1—American 16" Shaper, s. p. d.
- 1—American 24" Shaper, cone dr.
- 1—Newton 8" Slotter.

PRESSES

- 1—Toledo No. 53.
- 1—Toledo No. 54.
- 2—New Toledo No. ¾.
- 2—New Toledo No. 34-P, grd.
- 2—Toledo No. 55.
- 2—Zeh & Hahnmann No. 8½, percussion.

About 50 in stock. We may have the machine you need.

MISCELLANEOUS

- 3—Keller E-3 Engraving Mche.
- 1—Ryerson No. 2 Friction Saw.
- 1—Pratt & W. No. 12 Profiler.
- 1—Norton 66" Balancing Mche.

MOREY AND CO., INC. 408 Broome St.,
NEW YORK, N. Y.

Really Fine Tools

Blanchard No. 16 Motor Driven Grinder.
Brown & Sharpe No. 3 Vertical Miller.
Becker C-1 Vertical Miller.
Becker B Vertical Miller.
Cincinnati No. 3 Vertical Miller.
Brown & Sharpe No. 2B Plain Miller.
Cincinnati No. 2 Plain Miller.
Brown & Sharpe No. 3B Plain Miller.
Milwaukee No. 3B Plain Miller.
Brown & Sharpe No. 4B Heavy Plain Miller.
Kempsmith No. 1 Universal Miller.
Cincinnati No. 2 Universal Miller.
Milwaukee No. 3B Universal Miller.
Brown & Sharpe No. 3A Universal Miller.
Bullard 24" Rapid Production Mill.
Bullard 24" New Era Mill.
Niles 72" Vertical Boring Mill.
Betts 110" Vertical Boring Mill.
American 6' arm Universal Radial.
Warner-Swasey No. 4 Turrets.
Warner-Swasey No. 6 Turrets.
Warner-Swasey No. 2A Hexagon Turret.
Acme 3¼x36" Turret.
American 34"x16" Geared Head Lathe.
Prentice 30"x14" Geared Head Lathe.
Lodge-Shingley 14-6 Gd. Hd. Motor Driven Lathe.
Cincinnati 24" B. G. Shaper.
Bliss No. 1½ Toggle Press.
Bliss No. 3¼ Toggle Press.
Bliss No. 27 Embossing Press.
Bliss No. 24 Embossing Press.
Max Ams No. 1015 Double Crank Press.
Perkins No. 20-H Double Crank Press.
P. & W. No. 14 Vertical Surface Grinder.
Diamond No. 2 Surface Grinder.
Brown & S. No. 11, 12, 14 and 16 Plain Grinders.
Cincinnati 48"x36"x20" Three Head Planer.
Detrick-Harvey 36"x36"x10" Open Side Planer.

Send for Prices and Descriptions

Monarch Machinery Company
300 North Third Street, Philadelphia, Penna.

Must Vacate Our Warehouse — Att

Hundreds Of Oth

BORING MILLS:	30" Warner & Swasey Vert., table 29" dia.....	\$250.
	36" Niles, 2 swivel heads, table 33" dia.....	900.
	36" / 48" Bridgeport Extension, 1 swivel head.....	350.
	42" Bullard Rapid Production, 2 swivel heads.....	1000.
	51" Bullard, 2 swivel heads, table 50"x3½".....	500.
	72" Betts, table 60" dia., 7½" thick, 2 hds.....	750.
DRILL PRESSES:	40" New Haven Upright, b. g., sliding head ...	\$250.
	4" Drees Radial	400.
	8" Pond Radial	500.
GRINDERS:	Springfield Wet Tool, takes wheel 34"x4".....	\$ 50.
	Webster & Perks D. E. Heavy Foundry Type Grinder, takes wheels 24"x4".....	90.
LATHES:	19"x10" LeBlond, b. g., hollow spindle, motor drive, as is	\$150.
	21"x12" Johnson, hollow spindle, taper attach....	300.
	24"x16½" Johnson, solid spindle.....	375.
	26"x10½" Walcott Heavy Duty Quick Change Gear, dbl. bk. gr., hollow spdl., 8, each ...	690.
	3"x36" Jones & Lamson Flat Turret Lathe, lot extra tools, as is	200.
LATHE BED:	Israel Johnson Finished Lathe Bed, 45" wide, 23'3" long, 20" deep, from a 50" swing lathe. Has 3" spline screw, 2 pitch, and 2" face rack full length of bed. No cracks, breaks or welds. Suitable for building special machine, leveling table, or to add to lathe to take in long work. Have just sold the lathe, but purchaser wanted only half the bed. Wt. about 20,000 lbs.....	\$260.
MILLING MCHE.:	Cincinnati No. 3 Plain, overhanging arm, table 12"x3'11", as is	\$ 250.
	20" Circular Milling Attachment.....	60.
PRESSES:	No. 2 Baird Foot Power, 2¾" stroke, bolster plate 8"x6", bench type without stand, 3, ea. \$	20.
	Straight Side Punch Press, ¾" stroke, 10¾" bet. housings. Mounted on iron stand	60.
	No. 3 Stiles Incl. Plain Fly Wheel, 1½" str....	200.
	No. 3 Thomas O. B. I. equiv. No. 20B Bliss...	300.
SHEARS:	Carlin Alligator, low knife, Pitman t., cap. 1¾" \$	\$375.
	Waterbury-Farrell Rotary Shear, 14" throat, knives 4½" dia. Cap. about 16 gauge.....	50.

Russell Machine Company, 144

Attractive Prices To Move Stock of Other Bargains!

50. 00. 50. 00. 50.	SLOTTER:	Niles 15", Crank, 30" dia. rotary table.....	\$400.
50. 00. 50. 00. 50.	MISCELLANEOUS:	Baler, No. 8 Poston Hopper Door, steel, makes bale 16"x22"x28" weighing 100 lbs.....	\$ 12.
50. 00. 50.		Belting, about 500 lbs. Leather, rubber and can- vas, 2" to 6" wide, fair condition, 10¢ lb....	50.
50. 00. 50.		Bending or Folding Machine, hand power, to work on bench. Bending length 12".....	15.
50. 00. 50.		Blowers, 2 No. 8 Sturtevant Pressure, bottom horizontal discharge, outlet 13" dia., each...	60.
90. 00. 50.		2 No. 8 Buffalo Volume Blowers, one 13" dia. outlet, the other 16 3/8", each.....	60.
50. 00. 50.		Bulldozer, No. 2 Williams-White.....	350.
50. 00. 50.		Chain, Miscellaneous Lot, links 1/4" to 1" var- ious lengths, 1 1/2¢ lb.	
75. 00. 50.		Cold Saws, Wagner Size 18, Type 3, for 18" dia. saw. Vise has jaws 10" long, 4" deep, open 6". Hand geared ratchet feed.....	75.
90. 00. 50.		Gliem No. 22, takes 22" dia. saw, capacity: 6" round, 5 1/2" square, 8" I-beams, 10" chan- nels, 6" angles, 100 lb. rails. Screw hold down, C/S.....	150.
60. 00. 50.		Boiler Flue Expanders 1 1/2" to 4", \$2 to \$4 each. Gas Engine, Fenner 15 H. P. Hor. 9x14".....	150.
20. 00. 50.		Pipe Folder, 32" hand power for No. 24 gauge and lighter. For use on bench.....	35.
60. 00. 50.		Pipe Machines, Oster hand power on pedestal stand, cuts pipe 1" to 4".....	40.
20. 00. 50.		Eaton-Cole-Burnham Belt Drive, cuts pipe 1" to 4", fine condition.....	275.
60. 00. 50.		Eaton-Cole-Burnham Belt Drive, cuts pipe 2 1/2" to 8", fine condition.....	550.
75. 00. 50.		Large Planer Chuck, adjustable, will take in work up to 23" wide, 33" long.....	40.
50. 00. 50.		Punches, 6 hand screw, assorted sizes, each.....	5.
20. 00. 50.		Platform Scale, Fairbanks, will weigh up to 1000 lbs., excellent condition.....	20.
60. 00. 50.		Salamander for Coke heating, inside dimensions 22"x22"x24", 38" high. Good as New.....	15.
75. 00. 50.		Shaper, Gould & Eberhardt 14" sgl. grd. crank Swaging Machine, Excelsior belt dr., cap 3/16" Vises, plain & swivel, 5" to 7" jaw Machinists. Plain jaw, per inch.....	190. 90. \$1.50
50.		Swivel-base, per inch.....	2.00

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- 20-21"x10' LeBlond.
- 10-24"x11' Cisco.
- 1-24"x12' Reed Prentice Grd. Hd.
- 3-24"x12' Providence.
- 1-24"x15' Chard.
- 1-24"x24' Lodge & S. selective hd.
- 7-25"x10' LeBlond.
- 10-25"x12' LeBlond.
- 24-26"x10' Canada.
- 10-26"x18' Bridgeford.
- 18-32"x12' Pittsburgh.
- 1-36"x36' Putnam geared head.
- 4-36"x30' Pittsburgh Geared Hd.
- 3-36"x37' Niles Bement Pond.
- 1-51"x20' LeBlond.
- 1-56"-64"x18' Johnston.
- 1-60"x18' Johnston.

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- 2-No. 2 Rockford.
- 2-No. 28 Ohio.
- 6-No. 2-B Hvy. Brown & Sharpe.
- 4-No. 3 Kempsmith.
- 9-No. 3-B Hvy. Brown & Sharpe.
- 2-No. 4 Cincinnati.
- 2-No. 4 LeBlond.
- 3-No. 4-B Becker.
- 2-No. 3 Cincinnati Vertical.
- 2-No. 4 Cincinnati Vertical.
- 4-No. 5-C Becker.
- 3-No. 6 Becker.

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- 1-No. 32 Toledo Solid Back.
- 1-No. 34 Toledo Solid Back.
- 1-No. 93-A Toledo Double Crank.
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- 2-62" King.
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- 3-10"x72" Norton.
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- 1—34" Barnes.
- 1—3½' Fosdick & Holloway radial
- 1—6 spindle Allen sensitive.
- 1—36" Aurora.
- 1—12 spindle Harrington.
- 1—6 spindle Foote-Burt.
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24" Gould & Eberhardt Shaper, single
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15" Newton Vertical Slotter, arranged for
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	Various sizes Queen City back geared Crank Shapers and plain Cylinder Grinders	

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NEW 3 PHASE MOTORS CHEAP. 3 H. P. \$57.50; 5 H. P. \$67.50

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- 12"x 5' Cleveland, geared head.
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- 14"x 6' Hamilton, grd. hd., motor dr.
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- 14"x 6' Von Wyck, quick change gear, taper attachment.
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- Nos. 50 & 56 National Acme auto.
- 6" Gridley single spindle, automatic.

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- 16" American, tool room.
- 16" & 24" Barker, b. g. crank.
- 16" O. & S. b. g. crank, new.

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- 24"x 24"x 6' Gray.
- 26"x 26"x 10' Gray, 1 head.
- 30"x 30"x 10' American, 2 heads.
- 36"x 36"x 18' Pond.

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- Nos. 3-A & 6-A Willard inclinable.
- No. 1 Toledo inclinable.
- Nos. 1 1/2, 2, 2 1/2 & 4 Robinson.
- Emco, bench, for radio parts.
- No. 35 Niagara straight side.
- Perkins, dbl. housing, wt. 4,000 lbs.

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- 3 1/2' Silver, sgl. pulley, gear box dr.
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- 4' Universal Radial Drill Co. plain.
- Electric drills, Black & Decker.
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- Electric drills, Thor, all sizes.

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- No. 2 Kempsmith plain.
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- No. 25 Becker plain, power feed.
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- No. 2 H Brown & Sharpe plain.
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- No. 2 W. & P. 10x30 universal.
- 6"x 15" Fitchburg plain.
- 12x36 Cincinnati universal.
- 12x42" & 16"x 30" Landis plain.
- 36" and 66" Yates plate.
- Perfection cylinder.
- No. 60 Heald cylinder.
- Schmitt cylinder grinder.
- No. 3 Ohio universal & tool.
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- No. 20 Bryant, chucking.
- Capital internal, new, 2"x 2".

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- Band saw, metal, Klemm.
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- Gear cutter, 26" No. 3 B. & S.
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- Hammer, 150 lb. Standard drop.
- Oil separator, Springfield.
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- Punch & shear 1/2" by 1, 10" throat.
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- Shear, No. 20 Quickwork, 30" throat.
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THE
OSBORNE & SEXTON
MACHINERY COMPANY
COLUMBUS DEPT. H. OHIO

Forging Machinery

Upsetters:

All sizes from $\frac{3}{4}$ " to 5".

Bulldozers:

Williams-White, all sizes from No. 1 to No. 7.

Hammers:

Bradley Cushioned Helve, Bradley Upright Helve and Bradley Upright Strap from 30 lbs. to 500 lbs.

Steam and Board Drop.

Crank Lift Drop.

Single and Double End Punch Presses:

All capacities and depths of throat.

Shears:

Alligator and Bar Shears, capacities 1" to 6".

Threading Machines:

Single and double spindle from 1" to 3".

Miscellaneous:

Ajax Hot Saws and Burring Machines.

Mathews Marking Machine.

Alligator Shear, capacity 5" round.

Plate Shear, capacity 8"x1".

Donahue Steel Products Co.

204 N. Jefferson St.,

Chicago, Ill.

EXCEPTIONAL TOOLS PRICES

No. 00 Brown & Sharpe full automatic screw machine.....	\$ 390.
2 & 3 spindle Avey floor type sensitive drills, per spindle.....	110.
24-26" Libby turret lathe.....	2650.
27"x10" American engine lathe, cone drive	1900.
10" Curtis & Curtis (Forbes) pipe machine	500.
5" Niles B. P. (Ridgeway) Radial Drill..	1700.
16"x6" Cincinnati, severe duty engine lathe	600.

Machine Tools Sales Company

235 Commercial Trust Bldg.,

Philadelphia

FOR SALE BY Simmons Machine Tool Corp.

NEW YORK ALBANY BUFFALO
182 Lafayette St. 1212 Troy Road 88 Exchange St.

Milling Machines

No. 5 Cincinnati High Power Plain.
No. 3 Cincinnati High Power Vert.
No. 2 Cleveland All Geared Plain.
No. 1 Cleveland All Geared Plain.
No. 20 Garvin Vertical New.
No. 22 Garvin Vertical New.
No. 15 Garvin Vertical 3 Spindle.
No. 3 Davis Drum Type Cont.

Gear Cutters

No. 3 Brown & Sharpe Automatic.
18" Becker-Brainerd.
24" Gleason Bevel Planer.
36-BM Gould Eberhardt Rough.
No. 5 Lees Bradner Hobber.
24" Schuchardt Schutte.

Lathes

36"x60" Bridgeford All Geared Head.
36"x34" Bridgeford All Geared Head.
36"x22" Bridgeford All Geared Head.
36"x60" Bridgeford Boring Lathe.

Presses

No. 2-B Standard Dbl. Act.
No. 55 DAG Ferracute Drawing.
21 Ton R. D. Wood Hydraulic.
No. 2 B. A. Gier Straightening.
No. 7 Myers Bench Arbor.
No. 4 Greenerd Arbor.

Threaders

8" Eaton, Cole & Burnham.
8" Bignall & Keeler Pipe.
3" Landis Bolt, Lead Screw.
4" Williams Pipe Threader.
No. 2 Garvin Tapper B. G.
1 1/2" Acme Six Spindle Tapper.

Automatics

2 1/4" Gridley 4 Spindle.
3/4" Gridley 4 Spindle.
1 1/4" Gridley 4 Spindle.
2 1/4" Gridley 1 Spindle.
3 1/4" Gridley 1 Spindle.
2" Cleveland Model A.
2" Cleveland Model C.
1 1/4"x18" Cleveland Shaft.

Radial Drills

87" Warren D. C. Motor.
72" American Gear Box.
72" Bickford Gear Box.
60" Bickford Gear Box.
48" Bickford Gear Box.
28" American Sensitive.
24" Mueller Gear Box.

Turret Lathes

24" Vertical, Side Head.
34" Vertical, Bertram.
36" Vertical, Side Head.
No. 3-A Warner Swasey.
No. 6 Warner Swasey.
No. 4 Warner Swasey.
No. 3 Warner Swasey.
No. 1 Warner Swasey.
2 1/4"x11 Acme, G. F. H.
2 1/4"x10 Milholland, G. F. H.
1 1/2"x18 Pratt & Whitney.
No. 2 1/2 Garvin, G. F. H.
No. 5 1/2 Bardons & Oliver.

Vertical Boring Mills

42" Bullard 2 Heads.
48" Colburn 2 Heads.
51" Bullard 2 Heads.
54" Colburn 2 Heads.
62" King, 2 Swivel Heads.
62" Colburn.
72" Niles 2 Heads.
84" Pond Extra Heavy.
144" Niles, 2 Heads.

Saws and Cut-Off

No. 2B Gorton Cut-off.
No. 3 Burr Cold Saw.
14" Metal Band Saw.
6"x6" Marvel Hack Saw.

Grinding Machines

No. 2 Brown & Sharpe Surface.
No. 2 LaSalle Surface.
20"x72" Brown & Sharpe Universal.
14"x96" Norton Plain.
14"x72" Norton Plain.
14"x50" Norton Plain.
12"x36" Modern Universal.
10"x72" Norton Plain.
6"x32" Norton Plain.
6"x18" Landis Plain.
No. 1 Brown & Sharpe Universal.
No. 14 B. & S. Wide Wheel.

Miscellaneous

No. 3 1/2 Baker Keyseater MD.
1000 lbs. Rennerfelt Electric Furnace.
Eastman Photosts No. 0.
3F Lees Bradner Thread Milling Mch.
Garvin Die Slotter, New.
Ingersoll-R. 2 Stage, XB Compressor.
40-A Thompson Butt Welder.
300 lb. Bradley Upright Hammer.
1000 lb. McDougal-Potter single leg
Forging Hammer.

Dependable Used Machines At Attractive Prices

No. 3 Rivet Internal Grinder (new).
No. 2 Bath Universal Grinder.
5"x10" Greenfield Plain Grinder.
12" Bealy Disc Grinder, complete.
No. 184 Wells Cutter and Reamer Grinder.
No. 3 Barry Die Filer (floor type).
9"x12" Sundstrand Production Lathe (new).
No. 4 Cataract Bench Lathe.
16"x6" Monarch Lathe, g. c. & g.
No. 2B Heavy B. & S. Plain Miller.
24" Milwaukee Drill, b. g., p. f.
No. 2-B Edmund 2-spindle Drill (new).
9"x9"x24" Federal Bench Planer.
6" Merrell Pipe Mch., with gas engine dr., portable.
14" Steptoe Crank Shaper.
16" Ohio B. G. Crank Shaper.
No. 5 Marvel Shop Saw, automatic feed.
No. 3 Gardner B. B. Polishing Lathe.

THE REEVE-FRITTS CO., 558-560 Washington Blvd.,
CHICAGO, ILLINOIS

POWER PRESSES

Straight Side

No. 1015 Max Ams D. C., 2" stroke, weight 20000 lbs.
Perkins No. 20, Model H, D. C., 5" str., weight 36000 lbs.
No. 73½ Bliss, side shear, 3" stroke, weight 5600 lbs.
No. 75½ Bliss, side shear, 4" stroke, weight 14400 lbs.
No. 3¼-B Bliss, toggle, weight 39000 lbs.
No. 45 Bliss, geared, 3½" stroke, weight 19000 lbs.
No. 62 V. & O., geared, 6" stroke, weight 6600 lbs.
No. 6 Rockford, geared, 7" stroke, weight 6500 lbs.
No. 8-7 Z. & H., geared, 3" stroke, weight 6000 lbs.

Inclinable

No. 16 Stoll, geared, 2" stroke, weight 6000 lbs.
No. 19 Bliss, 1½" stroke, weight 1300 lbs.
No. 20 Bliss, 2½" stroke, weight 2250 lbs.
No. 4 V. & O., 2½" stroke, weight 4600 lbs.

150 Other Presses—Low Prices

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Used Tools At Bargain Prices

- 1—Barrett Cylinder Boring Machine, 6" bar, 65" long, 40" swing.
- 1—72" Bement-Miles Vertical Boring Mill, 2 swivel heads, friction feeds, countershaft.
- 1—No. 5 Becker-Brainard Vertical Milling Mche., c. s.
- 1—No. 4 Becker-Brainard Plain Miller, countershaft.
- 1—Owen Duplex Miller, table 32"x7½", countershaft.
- 1—Owen Plain Milling Machine, table 32"x7½", two 6" cutters, countershaft.
- 1—7" Cincinnati-Bickford Plain Radial Drill, single pulley, gear box drive.
- 1—24"x24"x12" American Planer, 2 heads on cross rail, standard belt drive, countershaft.
- 3—¾" Model A Cleveland Automatics, with equipment, in Serial 29,000.
- 2—1¼" Model A Cleveland Automatics, with equipment, in Serial 29,000.
- 1—42"x22" Niles-Bement-P. Triple Grd. Engine Lathe, internal face plate drive, pl. chge., 2 carriages, c. s.
- 1—38"x33" Niles-Bement-P. Triple Grd. Engine Lathe, internal face plate drive, pl. chge., 2 carriages, c. s.
- 1—18"x10" Lodge & Shipley Patent Head Engine Lathe, quick change, standard equipment, c. s.
- 1—18"x6" Whitcomb-Blaisdell Engine Lathe, single pulley, all grd. hd., qk. chge., standard equipment.
- 1—Brown & Sharpe 21"x72" Crank Shaft Grinder.
- 1—Tindel Morris 21"x74" Crank Shaft Grinder.
- 1—No. 14 Whiton Gear Cutter, spur & worm gears, parts, countershaft.
- 1—100,000 lb. Tinius Olsen Testing Machine, with motor equipment.

This is only a partial list

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Machinery Clearing House Dept.

FOR SALE BY

THE CO-OPERATIVE MACHINERY CO.

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24" Mueller Radial Drill, gear box drive, slightly used.....	\$ 650.
No. 2 Webster & Perks Universal Cylindrical Grinder, complete with all equipment. This mche. is in very fine condition	450.
54"x9" New Haven Stub Lathe.....	650.
9"x14" Porter Cable Mfg. Lathe, slow speed, with countershaft	225.
9"x14" Porter Cable Mfg. Lathe, high speed, single pulley dr.....	275.
No. 1 U. S. Hand Miller, good running condition.....	125.
No. 5 Becker Vertical Milling Machine, fairly old machine, but in good operating condition.....	375.
No. 2 B. & S. Univ. Milling Mche., cone dr., very fine condition	750.
No. 2 LeBlond Pl. Milling Mch., hvy. duty, cone dr., good cond.	575.
2-10 H. P. Cleveland Mtrs., 220 v., 3 ph., 60 cy., 1200 R. P. M., complete with rails & pulley. These motors practically new, each	150.
No. 34 Crosby C type Punch Press, not inclinable, area bolster plate 21"x30", opening in bed 15"x23", opening in back 22" face of slide 10 1/2"x17". Distance back from Center of slide 10 1/2"....	225.
No. 3 Toledo O. B. I. Punch Press, good condition.....	325.
16" American Plain Crank Shaper, good running condition.....	275.
No. 54 B. & O. Tur. Lathe, auto. collet bar fd., good condition	550.
No. 515 Fellows Gear Shaper, with heads for cutting R & L Herring Bone Gears, practically new.....	2000.

This is Only A Partial List

Bargains!

36" Bullard (Rapid Production) Mill.....	\$ 1,500.
No. 5 Niagara B. G. Inclinalable Press.....	475.
American 2 1/2" Radial Drill, S. P. Drive.....	550.
4" Bickford Cone Drive Radial Drill.....	500.
6" Dreses Plain Radial (Motor Drive).....	1,500.
20" Geared Shaper.....	190.
20" Walcott B. G. Crank Shaper.....	575.
No. 1 1/2 Hendey Universal Miller, no D. H.....	600.
No. 21 Lucas Mill, S. P. D.....	975.
No. 12 Barber-Colman Gear Hobber.....	1,150.
24" S. & S. Gear Hobber.....	550.
40" Upright Drills (3).....	Each 200.
16"x8" Standard Engine Lathe.....	125.
10x50 Norton Grinder.....	475.
24x24x6" Powell Planer, 1 head.....	500.
30x12 Gray Planer.....	950.
800 lb. Niles Single Frame Steam Hammer.....	850.
18" Niles Slotter (Motor Drive).....	1,500.
No. 92-D Toledo S. S. Press.....	1,350.

The Jones Machine Tool Co.
528-532 E. Front St., Cincinnati, Ohio

Classified Finding Index

- Air Guns**
Powell Co., Wm., Cincinnati
- Anvils, Solid**
Nicholson & Co., W. H., Wilkes-Barre Pa.
- Auto-Gages For Dies**
Dandy Machine Specialties, Inc., 4913 Lincoln Ave., Chicago
- Automatics**
New Britain Machine Co., New Britain, Conn.
- Balancing Ways**
Anderson Bros. Mfg. Co., Rockford, Ill.
Bowsher Co., N. F., South Bend, Ind.
- Balls, Bearing and Burnishing**
Abbott Ball Co., Hartford, Conn.
- Band Saw Machines, for Metal**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.
- Barrels, Tumbling**
Abbott Ball Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 13th, Chicago
- Belt Shifters**
Artisan Mfg. Co., Cincinnati, O.
- Bench Legs, Steel**
New Britain Mch. Co., New Britain, Conn.
- Bending Machines, Hand and Power**
Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
Leathwaite Mch. Co., T. H. 417 E. 31st., N. Y.
Lourie Mfg. Co., Springfield, Ill.
Pedrick Tool & Machine Co., Philadelphia
- Bolt and Nut Machinery**
Economy Engineering Co., Willoughby, O.
Foote-Burt Co., Cleveland, O.
- Boring Bars**
Pedrick Tool & Machine Co., Philadelphia
- Boring Bars, Cylinder**
Pedrick Tool & Machine Co., Philadelphia
- Boring, Drilling & Milling Machines**
Landa Tool Co., Waynesboro, Pa.
- Boring Machines, Horizontal**
Avey Drilling Machine Co., Cincinnati
Morris Machine Tool Co., Cincinnati, O.
Pedrick Tool & Machine Co., Philadelphia
Rockford Drilling Machine Co., Rockford, Ill.
- Burnishing Equipment, Ball**
Abbott Ball Co., Elmwood, Conn.
- Bushings, Drill Jig**
Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.
- Case-Hardening Compound**
Kassanit Company, 2 & 4 Stone St., New York
- Chucking Machines**
New Britain Mch. Co., New Britain, Conn.
- Chucks, Collet**
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bertau Ave., Chicago
- Chucks, Drill**
Eastern Tube & Tool Co., Inc., 580 Johnson Ave., Brooklyn, N. Y.
Jacobs Mfg. Co., Hartford, Conn.
Scully-Jones & Co., 2012 W. 13th, Chicago
Titan Tool Co., Erie, Pa.
- Chucks, Drill and Tap**
Peter Bros. Mfg. Co., Algonquin, Ill.
Scully-Jones & Co., 2012 W. 13th, Chicago
- Chucks, Keyway Cutting**
Scully-Jones & Co., Ry. Exch. Bldg., Chicago
- Chucks, Magnetic**
J. & H. Electric Co., Inc., Providence, R. I.
- Chucks, Wrenchless**
Thomas Elevator Co., 31 S. Heyns Ave., Chicago
- Clamps, Die**
Dandy Machine Specialties, Inc., 4913 Lincoln Ave., Chicago
- Clutches, Friction**
Conway Clutch Co., Cincinnati, O.
Edgemont Machine Co., Dayton, O.
- Cold Saws**
Burke Machine Tool Co., Conneaut, Ohio
Peter Bros. Mfg. Co., Algonquin, Ill.
- Collets**
Ames Co., B. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Bertau Ave., Chicago
- Contract Work Wanted**
Burke Machine Tool Co., Conneaut, O.
- Counterbores and Spot Facers**
Glensier Co., J. C., Detroit, Mich.
- Couplings, Friction Clutch**
Conway Clutch Co., Cincinnati, O.
- Cranes, Portable**
Canton Foundry & Mch. Co., Canton, Ohio
- Crank Pin Turning Machine**
Pedrick Tool & Machine Co., Philadelphia
- Crankshafts**
Leard Co., Wm., New Brighton, Pa.
- Cutters, Keyseating**
Davis Keyseater Co., Rochester, N. Y.
Scully-Jones & Co., 2012 W. 13th, Chicago
- Cutters, Milling**
Genesee Mfg. Co., Rochester, N. Y.
- Cutting-Off Machines**
Peter Bros. Mfg. Co., Algonquin, Ill.
- Cylinder Boring Machines, Portable**
Pedrick Tool & Machine Co., Philadelphia
- Demagnetizers**
J. & H. Electric Co., Inc., Providence, R. I.
- Dial Indicators**
Federal Products Corp'n, Providence, R. I.
- Die Sets**
Dandy Machine Specialties, Inc., 4913 Lincoln Ave., Chicago
- Dies, Pipe Threading**
Bignall-Keefer Mch. Wks., Edwardsville, Ill.
- Drill Racks**
Perkins Machine Co., Racine, Wis.
- Drilling Machine Heads, Multiple**
National Automatic Tool Co., Richmond, Ind.
United States Drill Head Co., Cincinnati

Classified Finding Index

Drilling Machines, Bench

Ames Co., B. C., Waltham, Mass.
Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Cincinnati, Ohio
Rockford Drilling Machine Co., Rockford, Ill.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Horizontal

Morris Machine Tool Co., Cincinnati, O.
Rockford Drilling Machine Co., Rockford, Ill.

Drilling Machines, Multiple Spindle

Avey Drilling Machine Co., Cincinnati
Foote-Burt Co., Cleveland, O.
National Automatic Tool Co., Richmond, Ind.
Rockford Drilling Machine Co., Rockford, Ill.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Portable Electric

Independent Pneumatic Tool Co., 609 W.
Jackson Blvd., Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 6001 N. Lincoln St., Chicago
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Post

Mueller Machine Tool Co., Cincinnati

Drilling Machines, Radial

Morris Machine Tool Co., Cincinnati, O.
Mueller Machine Tool Co., Cincinnati
Taylor & Fenn Co., Hartford, Conn.

Drilling Machines, Sensitive

Avey Drilling Machine Co., Cincinnati
Burke Machine Tool Co., Cincinnati, Ohio
Foote-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.
U. S. Machine Tool Co., Cincinnati, O.
Wisconsin Electric Co., Racine, Wis.

Drilling Machines, Vertical

Avey Drilling Machine Co., Cincinnati
Foote-Burt Co., Cleveland, O.
Leland-Gifford Co., Worcester, Mass.
Oesterlein Machine Co., Cincinnati, O.
Rockford Drilling Machine Co., Rockford, Ill.
Sigourney Tool Co., Hartford, Conn.
Taylor & Fenn Co., Hartford, Conn.

Drills, Twist

Cleveland Twist Drill Co., Cleveland, O.

Dust Handling Equipment

Knickerbocker Co., Jackson, Mich.

Emery Wheel Dressers and Cutters

Precision Truing Machine & Tool Co., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.
Western Tool & Mfg. Co., Springfield, O.

Feeders, Oil and Soda Water

New Britain Machine Co., New Britain, Conn.

Filing Machines, Die

Ames Co., B. C., Waltham, Mass.

Filing Room Equipment

Wardwell Mfg. Co., Cleveland, O.

Flexible Shafts

Strand Co., N. A., 6001 N. Lincoln St., Chicago

Forgings, Hollow Bored

American Hollow Boring Co., Erie, Pa.

Furniture, Machine Shop

New Britain Machine Co., New Britain, Conn.
Western Tool & Mfg. Co., Springfield, O.

Gauges, Dial

Ames Co., B. C., Waltham, Mass.

Gauges, Piston and Piston Ring

Federal Products Corp'n, Providence, R. I.

Gauges, Thread

Federal Products Corp'n, Providence, R. I.

Gear Cutting

Steppe Co., John, Cincinnati, O.

Gear Generators

Loeb-Bradner Co., Cleveland, O.

Gear Grinders

Loeb-Bradner Co., Cleveland, O.

Gear Testers

Loeb-Bradner Co., Cleveland, O.

Gears

Boston Gear Works Sales Co., Norfolk
Downs, Mass.

Grease Cups

Bowen Products Corporation, Auburn, N. Y.

Grinding Machines, Belt

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Peerless Surfacing Machine Co., Troy, N. Y.

Grinding Machines, Bench

Bodine Electric Co., 2256 W. Ohio St., Chicago
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Grinding Machines, Cutter, Reamer and Tool

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Landis Tool Co., Waynesboro, Pa.
LeBlond Mch. Tool Co., B. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, O.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Cylindrical

Jarecki Mch. & T. Co., Grand Rapids, Mich.
Landis Tool Co., Waynesboro, Pa.
Thompson Grinder Co., Springfield, Ohio

Grinding Machines, Die

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Disc

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Porter Cable Machine Co., Syracuse, N. Y.

Grinding Machines, Drill

Gallmeyer & Livingston Co., Grand Rapids,
Mich.
La Salle Tool Co., La Salle, Ill.
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Face

Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Internal

Landis Tool Co., Waynesboro, Pa.
Taylor & Fenn Co., Hartford, Conn.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

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Grinding Machines, Portable Electric
Bedine Electric Co., 2256 W. Ohio St., Chgo.
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago
Porter-Cable Machine Co., Syracuse, N. Y.
Service Tool, Die & Mfg. Co., 2258 Walnut
Street, Chicago
Stow Flexible Shaft Co., Philadelphia, Pa.
Strand Co., N. A., 5001 N. Lincoln St., Chgo
Wisconsin Electric Co., Racine, Wis.

Grinding Machines, Snagging
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Jarecki Mch. & T. Co., Grand Rapids, Mich.

Grinding Machines, Surface
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
La Salle Tool Co., La Salle, Ill.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Grinding Machines, Tap
Gallmeyer & Livingston Co., Grand Rapids,
Mich.

Grinding Machines, Tool
Taylor & Fenn Co., Hartford, Conn.

Grinding Machines, Universal
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
Landis Tool Co., Weynesboro, Pa.
Thompson Grinder Co., Springfield, Ohio
Wilmarth & Morman Co., Grand Rapids, Mich.

Hack Saw Blades
Peerless Machine Co., Racine, Wis.

Hack Saw Machines
Armstrong-Biss Mfg. Co., 341 N. Francisco
Ave., Chicago
Peerless Machine Co., Racine, Wis.
Racine Tool & Machine Co., Racine, Wis.

Hammers, Air
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago

Hammers, Riveting
Independent Pneumatic Tool Co., 600 W.
Jackson Blvd., Chicago

Hardness Testers
Wilson-Maclean Co., St. Marys St. &
Concord Ave., New York

Hoists
Ford Chain Block Co., Philadelphia, Pa.
Thomas Elevator Co., 31 S. Hoyne Ave.,
Chicago

Hoists, Portable
Canton Foundry & Machine Co., Canton, Ohio

Keys, Machine
Leard Co., Wm., New Brighton, Pa.

Keyseating Machines
Burr & Son, John T., Brooklyn, N. Y.
Chattanooga Mch. Co., Chattanooga, Tenn.
Davis Keyseater Co., Rochester, N. Y.
National Machine Tool Co., Cincinnati

Lathe Accessories and Attachments
Sidney Machine Tool Co., Sidney, O.

Lathes, Bench
Ames Co., R. C., Waltham, Mass.
Hardinge Brothers, Inc., 1770 Berceau Ave.,
Chicago
Monarch Machine Tool Co., Sidney, O.

Lathes, Engine
Bore & Emmes Mch. Tool Co., Cincinnati, O.
Carroll Mch. Tool Co., A. V., Cincinnati, O.
Carroll & Jamieson Machine Tool Company,
Batavia, Ohio
Cincinnati Lathe & Tool Co., Cincinnati, O.
Hardinge Brothers, Inc., 1770 Berceau Ave.,
Chicago

LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Monarch Machine Tool Co., Sidney, O.
Morris Machine Tool Co., Cincinnati, O.
Mueller Machine Tool Co., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Sebastian Lathe Co., Cincinnati, O.
Sidney Machine Tool Co., Sidney, O.
Steppe Co., John, Cincinnati, O.

Lathes, Fox Monitor
Barker Co., Wm., Covington, Ky.

Lathes, Gap
Carroll Mch. Tool Co., A. V., Cincinnati, O.

Lathes, Short Bed
Artisan Mfg. Co., Cincinnati, O.
Monarch Machine Tool Co., Sidney, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Sidney Machine Tool Co., Sidney, O.

Lathes, Turret
Monarch Machine Tool Co., Sidney, O.

Lubricators
Bowen Products Corporation, Auburn, N. Y.

Mandrels, Expanding
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Western Tool & Mfg. Co., Springfield, O.

Mandrels, Solid
Nicholson & Co., W. H., Wilkes-Barre, Pa.

Milling Attachments
Burke Machine Tool Co., Conneaut, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Oesterlein Machine Co., Cincinnati, O.
Porter-Cable Machine Co., Syracuse, N. Y.
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Bench
Ames Co., R. C., Waltham, Mass.
Burke Machine Tool Co., Conneaut, Ohio

Milling Machines, Hand
Burke Machine Tool Co., Conneaut, Ohio
Steppe Co., John, Cincinnati, O.
U. S. Machine Tool Co., Cincinnati, O.

Milling Machines, Horizontal
Oesterlein Machine Co., Cincinnati, O.
Steppe Co., John, Cincinnati, O.

Milling Machines, Plain
Burke Machine Tool Co., Conneaut, Ohio
Gallmeyer & Livingston Co., Grand Rapids,
Mich.
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Steppe Co., John, Cincinnati, O.

Milling Machines, Portable
Fedrick Tool & Machine Co., Philadelphia

Milling Machines, Spline
Taylor & Fenn Co., Hartford, Conn.

Milling Machines, Universal
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Steppe Co., John, Cincinnati, O.

Milling Machines, Vertical
Burke Machine Tool Co., Conneaut, Ohio
LeBlond Mch. Tool Co., R. K., Cincinnati, O.
Taylor & Fenn Co., Hartford, Conn.

Mills, Adjustable Hollow
Genesee Mfg. Co., Rochester, N. Y.

Motors, Electric
Reliance Electric & Eng. Co., Cleveland
Wisconsin Electric Co., Racine, Wis.

Oil Cups
Bowen Products Corporation, Auburn, N. Y.
Gits Bros. Mfg. Co., 1940 S. Kilbourn Av.,
Chicago

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Tolhurst Machine Works, Troy, N. Y.

Oil Hole Covers

Bowen Products Corporation, Auburn, N. Y.

Pattern Shop Machinery

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Pins, Leader And Dowel

Danly Machine Specialties, Inc., 4913 Lincoln Ave., Chicago

Pipe Bending Machines

Pedrick Tool & Machine Co., Philadelphia

Pipe Cutting and Threading Machines

Bignall & Keeler Mch. Wks., Edwardsville, Ill.

Planers, Openside

Cleveland Planer Co., Cleveland, O.

Planers, Valve Seat, Portable

Pedrick Tool & Machine Co., Philadelphia

Polishing and Buffing Machines

Independent Pneumatic Tool Co., 890 W. Jackson Blvd., Chicago
New Britain Machine Co., New Britain, Conn.
Wilmarth & Morgan Co., Grand Rapids, Mich.
Wisconsin Electric Co., Racine, Wis.

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Atlas Press Co., Kalamazoo, Mich.
Lourie Mfg. Co., Springfield, Ill.
Nicholson & Co., W. H., Wilkes-Barre, Pa.
Anderson Machine Co., 3251 Cottage Grove Ave., Chicago

Presses, Broaching

Lourie Mfg. Co., Springfield, Ill.

Presses, Foot

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Taylor & Fenn Co., Hartford, Conn.

Presses, Power

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Lourie Mfg. Co., Springfield, Ill.
Rockford Iron Works, Rockford, Ill.

Presses, Punch

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Pulley Machinery

Avey Drilling Machine Co., Cincinnati

Pulleys, Iron, Solid and Split

Conway Clutch Co., Cincinnati, O.

Pumps, Lubricant

Ruthman Machinery Co., Cincinnati, O.

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Armstrong Blum Mfg. Co., 341 N. Francisco Ave., Chicago

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Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
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Punches, Power

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Punches and Dies

Hendley & Whittemore Co., Beloit, Wis.
Leathwaite Mch. Co., T. H., 417 E. 31st St., N. Y.
Rockford Iron Works, Rockford, Ill.

Pyrometers

Wilson-Macaulen Co., St. Marys St. & Concord Ave., New York

Racks, Bar Stock

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Cleveland Twist Drill Co., Cleveland, O.

Reamer Holders

Nicholson & Co., W. H., Wilkes-Barre, Pa.

Reels, Extension

Cincinnati Specialty Mfg. Co., Cincinnati, O.

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Grant Mfg. & Mch. Co., Bridgeport, Conn.

Rod Cutters

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Bench Machine Tool Co., Philadelphia, Pa.
Hendley & Whittemore Co., Beloit, Wis.
Leathwaite Mch. Co., T. H., 417 E. 31st St., N. Y.

Saw Sharpening Machines

Wardwell Mfg. Co., Cleveland, O.

Scraping Machines, Hand & Pneumatic

Anderson Brothers Mfg. Co., Rockford, Ill.

Screw Drivers, Electric

Stephens Co., John, Cincinnati, O.

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Reynolds Machine Co., Mansfield, Ohio

Screw Machines, Automatic

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American Tool Works Co., Cincinnati, O.
Badger-Packard Mch. Co., Milwaukee, Wis.
Baker, J. C., Columbus, O.
Bardons & Oliver, Cleveland, O.
Bath & Co., Cyril J., Cleveland, O.
Bennett Mch. Co., 50 Church St., New York
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Brown Machinery Co., St. Louis, Mo.
Brownell Machinery Co., Providence, R. I.
Cincinnati Automatic Mch. Co., Cincinnati
Cincinnati Lathe & Tool Co., Cincinnati, O.
Cincinnati Machinery & Supply Co., Cincinnati, O.
Clark Machinery Co., Cleveland, O.
Co-operative Machinery Co., Cleveland, O.
Donahue Steel Products Co., 204 N. Jefferson St., Chicago
Eastern Machinery Co., Cincinnati, O.
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Easley Machinery Co., E. L., 555 Washington Blvd., Chicago
Fitzsimmons-Cole Mch. Co., Pittsburgh, Pa.
Foster Machinery Co., Cleveland, O.
Haetten & Co., J. E., Inc., 50 Church St., New York
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Hill, Clarke & Co., 640 W. Washington Blvd., Chicago
Hill, Clarke & Co., Inc., Boston, Mass.
Hyman & Sons, Joseph, Philadelphia
Industrial Plants Corporation, 25 Church St., New York
Johnson & Sons Machinery Co., Wm. C., St. Louis, Mo.
Jones Machine Tool Co., Cincinnati, O.
Kinsey Co., E. A., Cincinnati, O.
Little Co., W. F., Cleveland
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Marr-Galbreath Mch. Co., Pittsburgh, Pa.
Marshall & Huchart Machinery Co., 17 S. Jefferson St., Chicago
Midland Equipment Co., 612 W. Van Buren St., Chicago
Mid-West Machine Tool & Supply Co., Davenport, Ia.
Molitor Mch. Co., Chas., 118 S. Clinton St., Chicago
Monarch Machinery Co., Philadelphia, Pa.
Morey and Co., Inc., 408 Broome St., N. Y.
Morris Machine Tool Co., Cincinnati, O.
Motch & Merryweather Machinery Company, Cleveland, O.
Moyer, J. N., Philadelphia, Pa.
National Mch. Mfg. Co., Inc., St. Louis, Mo.
Niles-Bement-Pond Co., 111 Broadway, N. Y.
Norton-Broadway Mch. Co., Cincinnati, O.
O'Brien Machinery Co., Philadelphia
Osborne & Sexton Mch. Co., Columbus, O.
Oviatt & Co., D. C., Cleveland, O.
Peninsular Machinery Co., Detroit, Mich.
Queen City Machine Tool Co., Cincinnati, O.
Reeve-Fritts Co., 37 S. Desplaines, Chicago
Reliance Mch. Sales Co., Pittsburgh, Pa.
Rosenfeld Machinery Co., 942 W. Lake St., Chicago
Russell Machine Co., Pittsburgh, Pa.
Saltzman, B. L., 524 W. Van Buren Street, Chicago
Simmons Machine Tool Corp., Albany, N. Y.
Smith Machinery Co., H. A., Syracuse, N. Y.
Star Foundry Co., Albert Lea, Minn.
Stocker-Rumely-Wachs Co., 117 N. Jefferson St., Chicago
Stoehr Mch. Co., A. M., 844 N. Wells St., Chicago
Strafer, A. F., 30 Church St. New York
Strong, Carlisle & Hammond Co., Cleveland
Syracuse Supply Co., Syracuse, N. Y.
Tubor, Velick & Co., Inc., Lake & Desplaines Sts., Chicago
Wertman, M. A., Cleveland, O.
Winterer, Herman L., Philadelphia
White Mch. Co., A. D., 108 N. Jefferson St., Chicago

Shafts, Flexible

Stow Flexible Shaft Co., Philadelphia, Pa.

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American Hollow Boring Co., Erie, Pa.

Shaping Machines

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Smith & Mills Co., Cincinnati
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Shears, Hand

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
Hendley & Whittemore Co., Beloit, Wis.
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Leathwaite Machine Co., T. H., 417 E. 51st St., New York
Whitney Metal Tool Co., Rockford, Ill.

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Hendley & Whittemore Co., Beloit, Wis.

Slotting Machines

Rhodes Mfg. Co., Hartford, Conn.
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Spacing Washers

Detroit Stamping Co., Detroit, Mich.

Special Machinery

Stephoe Co., John, Cincinnati, O.

Spindles, Grinding

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Spindles, Air Driven, High Speed

Ex-Cell-O Tool & Mfg. Co., Detroit, Mich.

Stools and Chairs, Factory

Chicago Wire Chair Co., 619 N. La Salle St., Chicago

Straightening Machines

Townley Mfg. Co., John T., Cincinnati
Whitney Metal Tool Co., Rockford, Ill.

Tap Extractors

Walton Co., Hartford, Conn.

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Alto Mfg. Co., 1647 Wolfram St., Chicago
Avey Drilling Machine Co., Cincinnati
Bench Machine Tool Co., Philadelphia, Pa.
Burke Machine Tool Co., Conneaut, Ohio
Eastern Tube & Tool Co., Inc., 580 Johnson Ave., Brooklyn, N. Y.
Leland-Gifford Co., Worcester, Mass.
Whitney Metal Tool Co., Rockford, Ill.

Thread Millers

Lees-Bradner Co., Cleveland, O.

Threading Tools

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago
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Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago
Western Tool & Mfg. Co., Springfield, O.

Tool Racks

Chicago Wire Chair Co., 619 N. La Salle St., Chicago

Tools, Boring

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Lathe and Planer

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Machinists'

Armstrong Bros. Tool Co., 308 N. Francisco Ave., Chicago

Tools, Spot Facing

Genssco Mfg. Co., Rochester, N. Y.

Travellers, I-Beam

Ford Chain Block Co., Philadelphia, Pa.

Trucks, Machine Shop

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Townley Mfg. Co., John T., Cincinnati

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National Automatic Tool Co., Richmond, Ind.

Valve Grinders

Independent Pneumatic Tool Co., 800 W. Jackson Blvd., Chicago

Vices

Powell Co., Wm., Cincinnati

Vices, Drilling Machine

Armstrong-Blum Mfg. Co., 341 N. Francisco Ave., Chicago
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Thomas Elevator Co., 31 S. Hoyne Ave., Chicago

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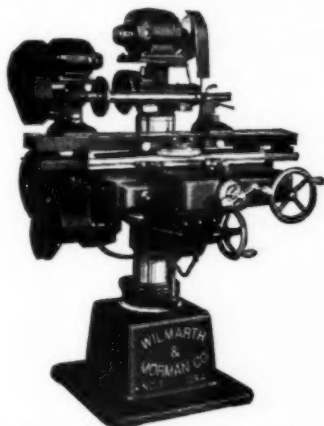
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Figures

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and the fact that our sales figures on New Britain Portable Steel Work Stands have shown such a continued and remarkably healthy increase has proven these to have justified their initial cost. They are labor savers and time savers; they soon pay for themselves in reduction of production costs, and it is through the reduction of such costs you can increase your profits. Various combinations to fit specific needs.



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